THE UNIVERSITY OF MICHIGAN
JUL 27 1961
MEDICAL LIBRARY

THE ILLINOIS MEDICAL JOURNAL

JULY 1961
Vol. 120 No. 1

OFFICIAL JOURNAL of the ILLINOIS STATE MEDICAL SOCIETY

TABLE of CONTENTS: PAGE 5

NEW B. I. D. DOSAGE

PRO-BANTHĪNE P.A.®

(BRAND OF PROPANTHELINE BROMIDE)

PROLONGED-ACTING TABLETS 30 mg.

PROVIDES YOU WITH THE RECOGNIZED
EFFECTIVENESS OF PRO-BANTHĪNE®
PLUS THE CONVENIENCE AND SUSTAINED
ACTION OF PROLONGED-ACTING MEDICATION.

Suggested Dosage—One tablet B.I.D. is usually effective

G. D. SEARLE & Co.
Chicago 80, Illinois
Research in the Service of Medicine

Abstract of Council Actions

Meeting of June 11, 1961

IMPARTIAL MEDICAL TESTIMONY IN STATE COURTS APPROVED

It was announced that the Illinois Supreme Court unanimously approved Rule 17-2, providing for impartial medical testimony in the state courts. This was recommended by the Illinois State Medical Society as a move to speed damage suit trials.

As in the case of the federal courts, a panel of highly qualified specialists will be maintained by ISMS. From this panel, the state courts and the litigants' lawyers may draw physicians to testify in damage suits. The plan in the federal courts has proved highly satisfactory.

COMMITTEES FOR COMING YEAR APPOINTED

Committee appointments for the coming year were made by the Council. In some instances, the work of committees was combined. A few committees also were dropped because their work had been completed. In general, appointments were made to assure active participation when any committee met to deal with problems of the Society.

SPOKESMEN FOR ANDERSON-KING HEARING NAMED

Dr. Edward W. Cannady, East St. Louis, chairman of the Committee on Aging, was named to represent the Society at hearings in Washington on the Anderson-King Bill, which ties medical care of the aged to the social security system. Dr. H. Close Hesseltine, Chicago, immediate past president, was named as alternate.

SPRINGFIELD OFFICE COMMITTEE REACTIVATED

The activities in the Springfield office have increased beyond expectations. As a result, the Society may be faced with the need for increased space. A committee, consisting of Dr. Harlan English, Danville, chairman; Dr. Harry Mantz, Alton, and Dr. Jacob E. Reisch, Springfield, was reactivated with instructions to consider possible needs as they arise.

COUNTY SOCIETIES ADVERTISE KERR-MILLS PROGRAM

Reports were made that the Sangamon County Medical Society, the Saline-Pope-Hardin Counties Medical Society, and 12 other counties have used newspapers, radio, and television advertising from the ISMS kit to arouse public interest in support of SB 197 (Kerr-Mills implementation), pending in the Legislature.

PROBATIONARY MEMBERSHIP RECOMMENDATION REFERRED

Council referred to the Committee on Constitution and Bylaws for study a recommendation from the DuPage County Medical Society that a special probationary membership be established for physicians who have passed state examinations but who are not citizens. This would permit such physicians to be part of organized medicine until they are eligible to qualify for citizenship.

REPORT ON HOME CARE FACILITIES

Dr. H. Close Hesseltine, Chicago, reported that he, Dr. Henry Wilson, Peoria, and Mr. Roger White, staff director, had attended a regional workshop on home care in Chicago, May 24-26, sponsored by the AMA. "Home Care" was defined as a coordination of medicine and medical services to provide these services in the home as a supplement to hospital and nursing home care in order to promote convalescence, recovery, and rehabilitation.

Dr. Hesseltine said there are four home care programs available in metropolitan Chicago and one in Peoria, and that Visiting Nurses Association movements existed in several parts of the state. It was suggested that the Illinois State Medical Society, Illinois Hospital Association, Illinois Public Health Association, and possibly the Illinois Nurses Association should be concerned in this movement.

POLL ON SOCIAL SECURITY FOR PHYSICIANS REFERRED

The survey of the members concerning their views on social security for physicians was referred to a new committee on medical economics for implementation. The results are to be reported to the ISMS and AMA House of Delegates.

COMMITTEE TO STUDY TAX DEFERRED RETIREMENT PROGRAM

The new Committee on Medical Economics was directed to make a study of tax deferred retirement programs and to come up with recommendations. These recommendations will be submitted to the House of Delegates for approval at its next meeting or by vote through the mail if earlier action is desired.

RELATIVE VALUE INDEX DEVELOPMENT UNDER WAY

In accordance with the House of Delegates instructions, the Council directed the Committee on Relative Value (formerly Committee on Medical Economics) to proceed with the development of a "relative value index" for Illinois. The committee's recommendations will be submitted to the House of Delegates for approval before general distribution to members.

TWO RECOMMENDED FOR IPAC VACANCIES

Council voted to recommend to Governor Kerner that he fill two vacancies on the Illinois Public Aid Commission by the appointment of Mrs. Bernice T. Van der Vries, former legislator, and Dr. Edward A. Piszczek, Chicago, chairman of the Council, who is not in private practice.

ESTABLISH SECTION ON NEUROLOGY AND PSYCHIATRC

A Section on Neurology and Psychiatry was established by the Council. A special program on that subject at the last annual meeting was well received, it was reported.

EMERITUS AND RETIRED MEMBERS ELECTED

Council approved emeritus status for Dr. John W. Long, Robinson (Crawford County). The following were elected retired members: Drs. Frank L. Chenoweth, Mason City (Mason County); Philip B. Marquart, Chattanooga (DuPage County), and Gustave F. Schmidt Sr., Robinson (Crawford County).

The ILLINOIS Medical Journal

Editor
T. R. Van Dellen, M.D.

Assistant Editor
Martha E. Dana

Business Manager
L. E. Malley

Director of Publications
Albert G. Boeck

Executive Administrator
Robert L. Richards

Vol. 120, No. 1 **July, 1961**

Editorial Board

EDWIN F. HIRSCH, M.D., *Chairman*
JAMES H. CROSS, M.D.
FREDERICK H. FALLS, M.D.
JAMES H. HUTTON, M.D.
FRANCIS I. LEDERER, M.D.
SAMUEL A. LEVINSON, M.D.
JACOB E. REISCH, M.D.
ARKELL M. VAUGHN, M.D.
EDWARD F. WEBB, M.D.
JOHN R. WOLFF, M.D.

●

Journal Committee

JACOB E. REISCH, M.D., *Chairman*
W. H. PALMER, M.D.
ALBERT VANDERKLOOT, M.D.
PAUL P. YOUNGBERG, M.D.

●

Published monthly by the Illinois State Medical Society, 360 N. Michigan Avenue, Chicago 1, Ill. Subscription $5.00 per year, in advance, postage prepaid, for the United States, Cuba, Puerto Rico, Philippine Islands, and Mexico. $6.00 per year for all foreign countries included in the postal union, Canada, $5.50. Single current copies 75 cents.

Second class postage paid at Mendota, Illinois. POSTMASTER: Send notices on form No. 3579 to Illinois State Medical Society, 360 N. Michigan Ave., Chicago 1, Ill.

Copyright 1961, The Illinois State Medical Society.

Contents

CLINICAL ARTICLES

Current Problems Facing Medicine
Edwin S. Hamilton, M.D., Kankakee 1
Human Factors in Jet and Space Flight
Lt. Colonel Charles A. Berry, USAF, MC, Washington, D.C. 3
Sequellae of Renal Trauma
E.T. Wilson, M.D., G.G. Curl, M.D., C. K. Bobelis, M.D., and *E.R. DiMarco, M.D.*, Chicago 11
The View Box
Franz Gampl, M.D., Chicago 23
Tuberculosis in Children, A Symposium (Concluded)
Eugene T. McEnery, M.D., Moderator;
William R. Barclay, M.D.
M.R. Lichtenstein, M.D.
E.A. Piszczek, M.D.
Irving R. Abrams, M.D. 24
Medicine in the Out-of-Doors — Sink or Swim
Julius M. Kowalski, M.D., Princeton 31
Motility Disturbances Caused by Prochlorperazine
Eugene F. Diamond, M.D., and *Nicholas M. Limperis, M.D.*, Chicago 34

CLINICAL-SURGICAL CONFERENCES

Perforated Peptic Ulcer
Robert J. Baker, M.D., Moderator;
Frederic W. Preston, M.D.
E. Lee Strohl, M.D. 14

EDITORIALS

Phenylketonuria, "an inborn error of metabolism"
Daniel J. Pachman, M.D. 36
The Phenothiazines 37
Recruiting physicians 37
Serious professional losses 38
K-fusion 38

AT THE EDITOR'S DESK 39
ANNOUNCEMENTS 42
ANNUAL MEETING 1961, ON LOCATION 46
NEWS OF THE STATE 49
BOOK REVIEWS 57
REFERENCE PAGE XXI
Sources for Educational Scholarships 61
MONTH IN WASHINGTON 18

ENDS ITCH FAST

ORAL ALLERCUR REACHES THE SKIN IN 10 MINUTES[1] FOR PROLONGED RELIEF

Allercur is the systemic answer to a dermatology problem. This single agent provides fast, prolonged relief of itching, both allergic and nonallergic, with only 2 to 4 tablets daily —without timed-release devices. Drowsiness and other side effects are of low degree. Unlike topical preparations, Allercur frees the patient of messy, inconvenient local application. Many risks of systemic phenothiazine and glucocorticoid therapy are decreased.

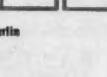
Effective: "An excellent or good antipruritic response occurred in 69 patients (79.5%). No toxic reactions occurred and there were virtually no side effects. Particularly notable were the absence of drowsiness and the rapidity with which the remission of itching occurred."[2] Allercur is also effective in the management of conditions such as nasal allergy, including seasonal hay fever.

CAUTION: If drowsiness occurs, patients should avoid activities demanding alertness.

AVERAGE DOSE: 2 to 4 tablets daily in divided doses.

SUPPLIED: Tan, scored tablets, each containing 20 mg. clemizole HCl, in bottles of 100.

REFERENCES: 1. Kimmig, J.: Hautarzt 3:414 (Sept.) 1952. 2. Butler, P.G.: Western Med. 1:16 (Nov.) 1960. Bibliography on request.



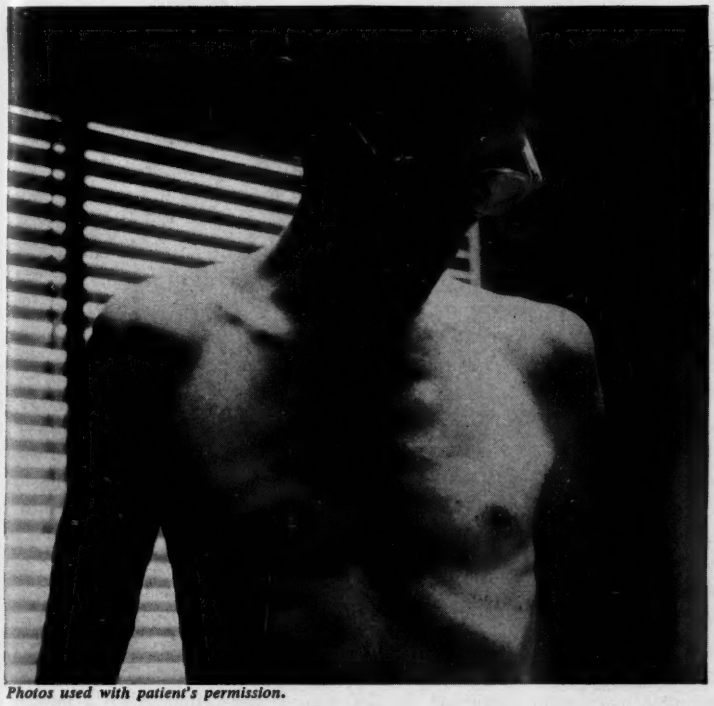
New York 17, N. Y.
Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being®

when allergies occur Rx

ALLERCUR*

*Reg. T. M., Schering, A. G., Berlin

(clemizole HCl)



Photos used with patient's permission.

How new Dianabol rebuilt muscle tissue in this underweight, convalescent patient

Patient was weak and emaciated before Dianabol. R. C., age 51, weighed 160 pounds following surgery to close a perforated duodenal ulcer. His convalescence was slow and stormy, complicated by pneumonia of both lower lobes. Weak and washed out, he was considered a poor risk for further necessary surgery (cholecystectomy). Because a conventional low-fat diet and multiple-vitamin therapy failed to build up R. C. sufficiently, his physician prescribed Dianabol.

Patient regains strength on Dianabol. In just two weeks R. C.'s appetite increased substantially; he had gained 9½ pounds of lean weight. His muscle tone was improved, he felt much stronger. After 4 weeks, he weighed 176 pounds. Biceps measurement increased from 10" to 11½". For the first time since onset of postoperative pneumonia, his chest was clear. Mr. C.'s physician reports: "He tolerated cholecystectomy very well and one week postop felt better than he has in the past 2 years."

Dianabol: new, low-cost anabolic agent

By promoting protein anabolism, Dianabol builds lean tissue and restores vigor in underweight, debilitated, and dispirited patients. In patients with osteoporosis Dianabol often relieves pain and increases mobility.

As an anabolic agent, Dianabol has been proved 10 times as effective as methyltestosterone. Yet it has far less androgenicity than testosterone propionate, methyltestosterone, or norethandrolone.

Because it is an oral preparation, Dianabol spares patients the inconvenience and discomfort of parenteral drugs.

And because Dianabol is low in cost, it is particularly suitable for the aged or chronically ill patient who may require long-term anabolic therapy.

Supplied: *Tablets*, 5 mg. (pink, scored); bottles of 100.

Dianabol®

(methandrostenolone CIBA)

converts protein to working weight in wasting or debilitated patients

For complete information about Dianabol (including dosage, cautions, and side effects), see Physicians' Desk Reference or write CIBA, Summit, N. J. 2/2829M9-2

CIBA

The Month in Washington

The American Medical Association supported the Kennedy Administration's proposal to provide $750 million in matching funds for construction of medical, dental, public health, and osteopathic schools.

In a letter to Sen. Lister Hill (D., Ala.), Chairman of the Senate Labor and Public Welfare Committee, Dr. F. J. L. Blasingame, executive vice president of the AMA, said; "As an Association of 179,000 practicing physicians, we are vitally interested in maintaining the high quality of medical education in the United States because of its direct relationship to medical care. For over a century, the American Medical Association has been actively and effectively engaged in the improvement of medical education in the United States. It can now be said that medical education in this country is superior to that found anywhere else in the world. It is not a coincidence that the improved standards of medical care in the last half century saw the elimination of sub-standard medical schools and diploma mills which had been turning out graduates in large numbers. This improvement in medical education is the result of the vigorous efforts of this Association and other interested organizations.

"We strongly believe that increased attention must be given to the adequacy of physical facilities, the availability of qualified instructors, and the availability of teaching material and patients for the clinical phases of medical education if high standards of medical education are to be maintained. Any attempt to increase the number of medical students without regard to these conditions will result in a lowering of the standard of medical education. We are of the firm conviction that increase in the physical facilities available for medical education should be given priority at this time over any other federal legislation in the field of medical education.

"We believe that there is need for assistance in the expansion, construction, and remodeling of the physical facilities of medical schools and, therefore, a onetime expenditure of federal funds on a matching basis, where maximum freedom of the school from federal control is assured, is justified."

The AMA opposed a provision that might encourage medical schools to expand too rapidly. Dr. Blasingame said, "It is quite possible that a forced increase in freshman enrollment would be detrimental to the quality of medical education."

The Association did not take a position on the provision of the Administration legislation that would provide federal scholarships to medical students. However, Dr. Blasingame described to the senate committee AMA's new medical scholarship and student loan programs.

The General Accounting Office found the Defense Department's Medicare program being conducted generally "in a satisfactory manner" but recommended some changes to correct what it considered "important deficiencies."

The Army, which administers the program of medical care for dependents of members of the armed services, took steps to put into effect most of the recommendations of the GAO, which audits federal spending for Congress.

However Medicare officials rejected a GAO proposal for a change in physician fees. "Our review disclosed that physicians' claims for

(*Continued on page 22*)

Clinically Proven

in more than 750 published clinical studies
and over six years of clinical use

Outstandingly Safe and Effective

for the tense and nervous patient

1. simple dosage schedule relieves anxiety dependably — without the unknown dangers of "new and different" drugs
2. does not produce ataxia, stimulate the appetite or alter sexual function
3. no cumulative effects in long-term therapy
4. does not produce depression, Parkinson-like symptoms, jaundice or agranulocytosis
5. does not muddle the mind or affect normal behavior

Usual dosage: One or two 400 mg. tablets t.i.d.
Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets; bottles of 50. Also as MEPROTABS*—400 mg. *unmarked*, coated tablets; and in *sustained-release* capsules as MEPROSPAN®-400 and MEPROSPAN®-200 (containing respectively 400 mg. and 200 mg. meprobamate).
*TRADE-MARK

Miltown®
meprobamate (Wallace)

WALLACE LABORATORIES / *Cranbury, N. J.*

CM-4728

ATTENTION ! !

Members of the
ILLINOIS STATE MEDICAL SOCIETY

Make certain you review
the Special mailing describing the
$10,000 INDIVIDUAL OR FAMILY
MAJOR HOSPITAL AND NURSE
EXPENSE PLAN
Available to *You*
as a member of the Society

AUGUST 1st
is the ANNIVERSARY DATE OF THIS
PLAN — Please mail your applications to

PARKER, ALESHIRE & COMPANY
Administrators
175 W. Jackson Blvd., Chicago 4, Illinois

THE SILVER HILL FOUNDATION

New Canaan, Connecticut
announces

THREE-YEAR RECIDENCY TRAINING PROGRAM IN PSYCHIATRY

Approved by the American Medical Association and the American Board of Psychiatry and Neurology.

Affiliated with Departments of Psychiatry and Neurology of the College of Physicians and Surgeons, Columbia-Presbyterian Medical School, New York City.

1st year spent at Medical Center, New York, N.Y. 2nd and 3rd years at Silver Hill, New Canaan, Connecticut. Applicants also considered who have completed one year or more of training elsewhere for our second or third year program.

Emphasis placed on training of physicians for private practice of psychiatry, under experienced preceptors, Board Diplomates, with teaching background.

Generous compensation, opportunities for permanent staff appointment. Only outstanding applicants accepted.

For further information and application form, write: William B. Terhune, M.D., Medical Director, The Silver Hill Foundation, Box 1177, New Canaan, Connecticut.

WASHINGTON (Continued)

medical care are, in general, significantly higher in states where maximum fees are made known to physicians than in those states where maximum fees are not made known," the GAO reported. "We estimate that there is an additional cost of as much as $3 million to $4 million annually as a result of maximum fees, rather than normal fees, being charged in the states where fee schedules are distributed to the physicians."

The GAO recommended that lower fixed fee schedules be negotiated for states where a high percentage of physicians claims are for maximum allowable fees "subject to being raised only on the basis of clearly supported evidence of higher normal fees." If lower fees cannot be negotiated, the GAO said, efforts should be made "to have the state medical society or other appropriate parties accept the responsibility for determining that physician claims are generally not in excess of their normal charges."

The GAO further recommended that "physicians be required to certify on each claim that the amount billed does not exceed the physician's normal fee for the medical care furnished."

The Army disagreed, saying that it believed "the present contracting concept is the most suitable to meet the requirements and is in the best interests of the government."

The AMA noted that it had held from the outset that "fixed fee schedules would result in a more expensive program than if physicians were permitted to charge their normal fees." Fixed fee schedules call for some fees above some so-called normal fees and others below average fees, and the AMA feels physicians tend to "balance out" by using fees listed in the fixed fee schedule.

Medicare was started December 7, 1960. During the first four years of the program, $130 million was paid to civilian doctors and $133 million to civilian hospitals for care of 1.1 million military dependents. Maternity cases accounted for about half the total.

Medicare has asked Congress for $73.2 million for the fiscal year 1962 beginning this July 1. This is a $6.9 million increase over Medicare's current budget. The increase is needed, Medicare said, because of more military dependents eligible for the program's benefits and increases in the costs of service.

The
ILLINOIS
Medical Journal
Official Journal of The Illinois State Medical Society

JULY, 1961
VOL. 120, No. 1

Current Problems Facing Medicine

EDWIN S. HAMILTON, M.D., *Kankakee*

It would be misleading not to admit at this time that I am moved as well as pleased. Any man who has spent almost 50 years in the practice of medicine and has been a member of this House for 30 years could not help being elated and grateful for elevation to the presidency of the Illinois State Medical Society. And I hope that my wife feels the same way and will continue to do so the coming year.

The past year has been spent principally in reorganizing the Illinois State Medical Society. Your officers, and especially your president, H. Close Hesseltine, and the chairman of the Council, Edward Piszczek, have given liberally their time and ability to perfect the new organization, which we see in action for the first time at this annual meeting.

Our organization is now complete, or nearly so, and only minor alterations and additions should be needed in the coming year, after we have had the "shakedown cruise." One or both of our chief officers have attended all the district meetings to explain the new organization set-up, under the executive administrator, Mr. Robert L. Richards. Collectively they have done an excellent job, and I wish to publicly voice my appreciation of their work the past year.

Now it becomes our responsibility to take a look at some of the current and future problems facing medicine today.

The first of these is to make good medical care available to all citizens of Illinois, regardless of race, color, creed, or financial responsibility. This can be accomplished only when all our members rededicate themselves to give such care to every citizen of Illinois. Service must be prompt, adequate, and kind. It must have T.L.C. quality —that is, tender, loving care—wherever and whenever needed. This is a responsibility of all medical practitioners, specialists as well generalists. Every practitioner, regardless of his special interest in medicine, should be available for the acutely ill, especially in emergencies.

This is particularly true for many of the elderly who in our present impersonal society

Presidential Address delivered before the House of Delegates at the Annual Meeting of the Illinois State Medical Society, May 18, 1961.

have been denied this tender, loving care. The medical profession should return to the image of the horse-and-buggy doctor who, while administering to his patients' physical ills, was also their father confessor. This latter service is frequently the most important factor in their medical care.

We must make adequate care available to our senior citizens. We feel that this can best be done by Health Insurance and implementation of the Kerr-Mills Bill by our state legislature. We must help to accomplish this by contacting directly the senators and representatives from our respective districts, explaining to them the urgency for appropriate action and our desires in the matter.

We must perfect our liaison with members of other professions, especially the dentists, pharmacists, lawyers, and veterinarians. Also we must establish and maintain good public relations with such nonmedical groups as the farmers, industry, and organized labor. We must indoctrinate them in our opinions and desires, and the sincerity of our position on making adequate care available to all.

We must help to preserve *freedom* of the individual man, the layman as well as the physician, in this disturbed and apprehensive world. Freedom is our most precious possession, and we must guard it jealously and militantly wherever and whenever it is in danger. This danger is often camouflaged by high-sounding phrases and promises. Remember freedom can be lost piecemeal as well as all in one action. Once lost it is seldom recovered. I would like to close with this creed, written by Dean Alfange:

> I do not choose to be a common man. It is my right to be an uncommon man — if I can. I seek opportunity, not security. I do not wish to be a kept citizen, humbled and dulled by having the state look after me. I want to take the calculated risk; to dream and to build; to succeed and to fail. I refuse to barter incentive for a dole. I prefer the challenges of life to the guaranteed existence; the thrill of fulfillment to the stale calm of utopia. I will not trade freedom for beneficence, nor my dignity for a handout. I will never cower before any master nor bend to any threat. It is my heritage to stand erect, proud and unafraid; to think and act for myself, enjoy the benefits of my creations and to face the world boldly and say, "This I have done." All this is what it means to be an American.

Again I thank you on behalf of my wife and myself for the honor accorded me today. I believe I know the problems of medicine, and I assure you that I will give you the best I am capable of during the coming year. I hope to transfer to my successor a year from now an organization stronger and more united than it is today.

Fastest with the mostest

It is fortunate that in this area of short term treatment the antiphlogistic action of the steroids does not bring us into the risk of undesirable hormonal effects, Cushing's syndrome or other. For pharmacologic effects in contrast to hormone or endocrine effects, we have an amazing range of dosage which we can use safely for this five to seven day period. We can increase it many fold over hormonal doses in most instances, and in getting this anti-inflammatory reaction one wants to be sure that the dose is large enough. In the presence of infection one must add antibiotic therapy for the underlying disease process, e.g., in tuberculosis, gram negative rod septicemia, and so on. For all of these acute infectious processes we do not have a specific therapy, but where one is recognized it is essential that antibacterial agents be combined with the steroids.

With massive short term steroid therapy it appears possible occasionally to save an eye, save a liver or save a life from death by anaphylaxis. We can use tremendous doses if we will combine the specific therapy with the non-specific pharmacological effects—I am not talking about hormone effects or replacement therapy in this zone. If we are able to stop steroids after a few days, we are staying out of trouble. *Leslie W. Whitney, M.D. Panel Discussion on the Use of Steroids. Delaware M. J. April 1961.*

Human Factors

In Jet and Space Flight*

LT. COLONEL CHARLES A. BERRY, USAF, MC,† *Washington, D.C.*

WE HAVE THE privilege of living in an exciting age, perhaps the most exciting and rapid-changing in world history. It seems only a short time ago that much of the public was traveling by horse and horseless carriage; now many fly in jet airliners. Recently a man was rocketed into space both here and abroad, and someday spaceliners will traverse the silent void of space. The new specialty of aerospace medicine is vitally concerned with the health and well-being, and thus the care and protection, of man in flight in air or space.

Any flight, whether a few hundred feet or a few hundred miles above the earth's surface, places man in an environment for which he was not designed. The constant enemy is not disease caused by bacteria or virus, but the environment. Our job is the preparation of man for flight in this alien environment; and much of it becomes preventive in nature, for after-the-fact treatment in many cases is too late. The results of environmental encounter must be anticipated, explored, and tested, and protection provided. This care and protection encompasses all of the pilot's activities, whether they be in the community, on the flight line, or flying in air or space

Some comment about the title is appropriate. It implies a broad area of coverage and indeed a book of this title was just published[1]. When one thinks of human factors today, all too often only human engineering or psychological pursuits are considered. Here, as in the book, the term is used to include the entire medical team approach to the man who flies; so perhaps medical problems of jet and space flight would be better terminology.

A recent International Air Transport Association (IATA) Conference was concerned with the problems of developing a supersonic air transport. This vehicle will travel at Mach 2 to 3 (2 or 3 times the speed of sound) and at altitudes of 50,000 to 75,000 feet. Such a vehicle is a tremendous undertaking and will be flying at what may be called space-equivalent altitudes. Thus we may discuss many of our jet and space problems together.

As might be suspected, the old enemy, Environment, is also responsible for most of the problems encountered or anticipated in manned space flight and supersonic jet flight. Today I would like to discuss some of the medical implications of this environment. These problems may be generally divided into those developing as a result of altitude or distance from the earth's surface, such as hypoxia and dysbarism, and those which are not directly a result of altitude, such as weightlessness and isolation. Some limit must be declared, and so the various problems will be briefly discussed with emphasis on only a few.

The air envelope and the space outside it are a continuum called the aerospace. The medical problems met in space flight are for the most part merely an extension of those known in aerial flight. This can best be illustrated by a discussion of space-equivalent altitudes. These are altitudes, many well within the flight envelopes of current aircraft, at which the effect of some environmental hazard is as severe as it would be in actual space. The area from sea level to 50,000 feet is frequently termed the zone of physi-

**Oration in Medicine presented at the 121st Annual Meeting of the Illinois State Medical Society, May 17, 1961.*

†From the Aerospace Medicine Division, Office of the Surgeon General, USAF.

ological insufficiency, for even here man must have certain equipment to maintain his normal physiological functions. The area extending vertically from 50,000 feet to 120 miles is termed the partially space-equivalent area, for here many of the environmental factors produce physiological responses as severe as those encountered in space. Above the 120 mile level all conditions may be considered totally space-equivalent for man. Thus we see the geophysicists or astronomers definition of space as beginning at the 600 mile level has little significance for man, for he is beset by the many astronautical problems long before that altitude is reached. Let us now take a closer look at some of these space-equivalent altitudes.

The environment at sea level is the blanket of air — the atmosphere — providing protection for man's rather delicate physiological functions. As we ascend toward the flight level of supersonic transport, we have less and less of this protective blanket, and thus our environment is drastically altered in the 50,000 to 70,000 feet area[2]. The tolerance levels are somewhat forgiving at conventional aircraft flight levels, but at the altitudes of the supersonic transport and the space vehicles there is virtually no margin for error.

Pressure

The most obvious environmental change noted at 50,000 feet is the tremendous reduction in atmospheric pressure to only 87.3 mm. Hg or 1.69 psi. At 60,000 feet it is further reduced to 54.1 mm. Hg or 1.05 psi, and at 70,000 feet to 33.6 mm. Hg or 93.52 psf (lbs./ft^2). This low pressure is not sufficient for man's physiological needs, and several important problems are thus created. In order of occurrence, they are decompression with its physical effects and resulting hypoxia, anoxia, dysbarism, and ebullism.

Decompression

Though it is not directly related to a space-equivalent altitude, the subject of decompression is pertinent to our discussion. It is common knowledge that in order to maintain a habitable cabin environment current airliners compress the ambient air to create pressure differentials of rather significant values across the cabin walls. Some typical jet airliners have pressure differentials in the 8.2 to 8.7 psi range. While this pressure allows a comfortable and safe cabin altitude (approximately 6,700 feet), it also creates a hazard of loss of this pressure and sudden exposure to ambient altitude. At 60,000 feet a pressure differential of 9.06 psi would be necessary to maintain the cabin at 10,000 feet and 9.86 psi to maintain 8,000 feet, which would be more desirable. Rapid decompression would expose the occupants to physical injury, hypoxia, anoxia, dysbarism, and ebullism. Such decompressions have occurred with discouraging frequency and are due to loss of hatches, canopies, doors, astrodomes, windows, and to failure of the compressor system. Massive structural failures, as in the Comet, would be disastrous and must be prevented. This has been accomplished by using the "tear-stop" design. Attempts to preclude total pressure loss have been made by use of multiple compressors and fail-safe pressure valves. Designers have also created doors and windows which are plug-shaped to stop outward loss of these structures. Audible signals of pressure loss and rapid descent of the aircraft are also safety measures currently in use. Oxygen masks which are presented automatically are also at long last standard equipment on the jetliners.

The magnitude and the rate of the decompression are determined principally by the pressure differential between cabin and outside, the size of the cabin, and the size of the opening through which the cabin is decompressing. A 2′ × 2′ opening in a fighter aircraft would be of considerably more concern than the same opening in the fuselage of a jetliner. There have been many inflight decompressions in our fighter-type aircraft, but the low pressure differentials (2.5-5.0) have prevented physical damage. These low differentials are made possible by the use of oxygen equipment and/or pressure suits.

The large jetliners offer protection by the size of the cabin slowing the time of decompression. If the airway is open, there should be no difficulty following such a rapid decompression. It is possible to render the situation more hazardous by speeding the decompression and having a closed glottis that interferes with escape of the expanding gases in the lungs. One death has occurred in the altitude chamber from an individual holding his breath during a decompression from 8,000 to 22,000 feet. The expansion of saturated (with water vapor) body

gases at altitudes of 50,000 to 60,000 feet is a cause of some concern.

The relative expansion of a saturated gas at 37 C. (body temperature) is determined by using the following formula:

$$\frac{V_2}{V_1} = \frac{P_1 - 47}{P_2 - 47}$$

where:

$\frac{V_2}{V_1}$ = ratio between the final volume of gas (V_2) and the initial volume (V_1);
P_1 = the initial pressure;
P_2 = the final pressure; and
47 = the pressure of water vapor at body temperature expressed in millimeters of mercury.

By using this formula, a decompression from 8,000 to 50,000 feet would produce a gas expansion of 12:1; and if the decompression were carried to 80,000 feet, it would be 80:1. These ratios are for unopposed expansion and would be modified by tissue resistance. The initial quantity of gas is of great importance in such situations, for the large quantity in the intestinal tract could produce great pain. Small amounts expanding in very sensitive or critical areas would also pose a problem, however.

The two important factors in estimating the hazard are the relative gas expansion (RGE) and the time of decompression. The latter is determined by the following equation:

$$t = 0.22\ (V/A)\sqrt{\frac{(P\text{-}B)}{B}}$$

where:

V = volume of pressurized cabin in cubic feet;
A = cross section area caused by structural failure, in square inches;
P = cabin pressure in mm. Hg; and
B = actual flight altitude pressure in mm. Hg.

The maximum tolerable decompression conditions for man can be plotted in terms of RGE and time of decompression. The line so determined would represent a maximal design limit for tolerable decompressions including a margin of safety. It is always important in discussing man's tolerances to emphasize that the engineer must not design to man's tolerances but to his comfort level.

Hypoxia and anoxia

Oxygen comprises 21 per cent of the available pressure at sea level and therefore has a partial pressure of approximately 159 mm. Hg. When this pressure drops below 109 mm. Hg (found at 10,000 feet), there is not enough force to drive the oxygen across the lung membrane in sufficient quantity to maintain the body's needed supply. This results in a condition termed *hypoxia*. The physiologic effects of this condition are well known to airmen and are not consistent with flying safety. Blurring of vision, diminished night vision, faulty judgment and poor coordination, headache, dizziness, and eventually unconsciousness result. The decreased night vision may be noted at altitudes as low as 5,000 feet, and other symptoms develop in the unprotected shortly after 10,000 feet is reached. Both military and civil aviation have long recognized this problem; there are firm rules concerning the use of supplementary oxygen supplied by mask and regulator and, in military aviation, by pressure suits at altitudes in the 50,000-foot range.

The current jetliners have automatically presented oxygen masks available for passengers, and the crew has masks constantly available and one crewmember on oxygen when flying at altitudes above 35,000 feet. There has been considerable controversy concerning the amount of oxygen which should be available on such flights and, also, when and by whom it should be used. The current Federal Aviation Agency regulations, based generally on the recommendations of ARP-505 of the Society of Automotive Engineers committee on oxygen, are sound and have ample experimental evidence to support them.

Barron[3] studied 154 subjects who were decompressed from 8,000 to 30,000 feet in 12 seconds. The time of useful consciousness (TUC) at 30,000 feet with subjects at rest in an ideal environment is from 40 to 74 seconds. Some 40 per cent of these subjects had used oxygen equipment previously; and still their mask-donning time increased with delay in descent from 30,000 feet until, with 60-second delay, they were unable to don their masks at all. With only 20-second delay, 88 subjects experienced hypoxia symptoms (lightheadedness, dizziness, and faintness), and 11 became confused and disoriented. All did apply their masks by the

time 15,000 feet was attained, and all recovered within 30 seconds of the mask application.

Bryan[4] studied experienced aircrews being decompressed from 8,000 feet to 40,000 feet in 15 seconds. TUC's were difficult to determine, but he too found that hypoxia ensued with even a 5-second delay. The difference in reaction at 30,000 and 40,000 feet is marked, and crews should be aware of this and not maintain a false sense of security due to their response at 30,000 feet.

Bennett[5] exposed 42 airline pilots to unwarned decompressions in aircraft between 26,000 and 38,000 feet, but the cabin altitude never went over 30,000 feet. Forty pilots recognized in less than 5 seconds that a pressure change had occurred, and all perceived the change in 10 seconds. Oxygen masks were hanging in front of the pilots on quick-donning harnesses, and 36 per cent had achieved their use within 10 seconds and 83 per cent within 15 seconds. Emergency descent was initiated in all cases within 5 seconds of mask-fitting. The maximum elapsed time for recognition of the emergency, fitting of masks, and descent from 38,000 feet to 10,000 feet was 3.5 minutes. Eight pilots were decompressed in the chamber from 8,000 to 40,000 feet, from the ready position. All were able to don the masks successfully; but 3 of the 8 showed signs of impairment of intellectual function after only 5 seconds, and 3 out of 4 showed such signs after 10 seconds. All but one recovered within 10 seconds of mask application. The one developed gross hyperventilation with paresthesia, tremors, and incipient collapse. This series also confirms the fact that the individual exposed to 40,000 feet must have his mask on if he is to avoid hypoxia. The important fact to remember is that even experienced personnel had difficulty donning an oxygen mask correctly after a decompression which further reduced the TUC. Among passengers, smoking, drinking, the use of medication, and illness may all enhance the hypoxia.

It will be noted that the studies reported are concerned only with altitudes of 40,000 feet and below. What about 50,000 to 70,000-foot domain of the supersonic airliner? At 50,000 feet the partial pressure of oxygen is only 18 mm. Hg. Of even more importance, the total barometric pressure is only 87 mm. Hg, and the lung alveoli are occupied by carbon dioxide (40 mm.) and water vapor (47 mm.) to the total exclusion of oxygen. Thus exposure to this altitude results in anoxia. The time of useful consciousness would be limited to the circulation time of lungs to brain, or 8 to 12 seconds. It is quite obvious that ordinary oxygen mask presentation will be of little value at such altitudes unless the decompression rate can be so slowed that the passengers will never be exposed to the full effects of this altitude. In space vehicles the astronaut is protected first by a sealed cabin life support system and, in the event of its failure, by a full pressure suit.

Dysbarism

Dysbarism may be defined as the symptom complex resulting from exposure to reduced or changing barometric pressure.[6] It is an entity totally apart from hypoxia and may occur at altitudes where the individual is well oxygenated by use of current protective equipment. Current evidence indicates that this condition may occur at altitudes as low as 22,000 feet; and, indeed, death from severe dysbarism has occurred at this low altitude. It is difficult to ascertain the exact incidence of this condition. Exposures in low pressure chambers are not always uniform in their rates of ascent, peak altitudes, time at altitude, etc.; and cases occurring in flight have not been uniformly reported. The incidence reported by the USAF Physiological Training Program is probably the most reliable, for the conditions of exposure and the trainees are most uniform here.

In 441,000 trainees undergoing the standard chamber flight to 43,000 feet, approximately 17 out of every 100 experienced some grade of dysbaric symptom. The majority of these were trapped gas symptoms involving the ears, sinuses, teeth, or abdomen. Less than 1 of every 100 persons experiencing dysbarism symptoms requires hospitalization; of those who do, 6 of every 10 are mild cases, 4 are severe, and 2 die. Recently there has been a marked increase in inflight cases in the USAF. The majority of these involve the T-33 aircraft, but all involve jet aircraft flown at altitudes in excess of 20,000 feet with faulty pressurization systems for one reason or another.

The time of exposure at these altitudes need not be great, for in a group of severe chamber reactors it was noted that 90 per cent had been

exposed to altitudes of 30,000 feet or over for only 20 minutes or less. The basic etiology of this condition seems to be the evolution of nitrogen bubbles with undetermined roles played by vasospasm, blood sludging, and perhaps fatty livers and fat emboli. The majority of the severe cases fall among those past 35 years old who tend to be obese. Treatment still tends to be symptomatic, though the use of compression chambers to greater-than-atmospheric pressure in several recent cases appears to be very effective if initiated early enough. Dysbarism could then become a real problem if the aircraft were to survive the initial decompression and reach altitudes where oxygen equipment would provide hypoxia protection.

Ebullism

This could be simply defined as the "boiling" of body fluids without the addition of heat. At 63,000 feet the total pressure is equal to that of water vapor, and thus the only deterrent to body fluids "boiling" is the pressure exerted by body tissues. The exact altitude may vary due to body temperature and the solutes in the fluids. Water vapor has been observed in the thorax of animals at altitudes as low as 61,000 feet; and, indeed, a beaker of actual blood may be made to "boil" in the altitude chamber at this altitude by varying the temperature. It is obvious that some device such as the pressure suit is mandatory for protection against this condition. Structural and systems reliability become even more important; however, other countermeasures must also be considered.

Suggested solution

In view of the foregoing statements, we connot afford to allow total decompression of the supersonic airliner. Unfortunately, no engineer, however well-meaning, can absolutely guarantee his aircraft against rapid decompression. There has been an unhealthy dependence on rapid descent and a constant attempt by both military and civilian aircrews and agencies to go ever higher with less and less protective equipment in use or immediately available. This trend must be reversed, for there is *no* room for error at altitudes of 50,000 to 70,000 feet.

If the engineer is successful in using compartmentation, multiple compressors, and the like, and thereby limiting the extent of decompression and affording more time for descent, pressure-demand oxygen equipment will be of some value and should certainly be available. In addition, however, full consideration should be given to the incorporation of some form of automatically-actuated, individual capsule at each passenger and crew station. This is admittedly expensive in both coin and weight; but if we are to avoid returning an aircraft with dead passengers aboard, this must be considered as a possible solution to the above problems at these critical altitudes.

An additional controversial suggestion is the deletion of windows from this type of aircraft. This would provide a further safety factor, and perhaps movies or other diversions might be used as psychologic substitutes.

It should also be obvious that crewmembers of any supersonic air transport must receive detailed physiologic indoctrination including exposure in the altitude chamber.

Ozone

One of the known atmospheric toxicants of current concern is ozone. Spectrographic measurements, both in this country and in Germany, have revealed an area of increased ozone content greatest between 70,000 and 100,000 feet, with the maximum concentration at about 85,000 feet, and little or none above 120,000 feet. This ozone is produced by the action of ultraviolet light in waves lengths less than 2,000 Angstroms on ordinary oxygen. The atmospheric concentration varies with the season and with the geographic location. The concentration is lower in the fall and higher in the spring. What significance does this hold for man?

Clamann[7] has reported studies on the physiologic effects of ozone in five human subjects at sea level. Though there were great individual differences in sensitivity, irritation of the respiratory tract was observed at concentrations as low as 0.6 parts per million (ppm.) for exposure times of 30 minutes. Gross changes in respiratory function were noted after exposures to 6 ppm. for one hour. The toxicity is graphically illustrated by comparing the maximum allowable concentration (for an eight-hour daily exposure for a year) with that of other known toxicants. Ozone is 0.1 ppm., while carbon monoxide is 100 ppm., and phosgene and chlorine are 1 ppm. respectively.

The effect of ozone on rubber is well known, and intermittent exposure of equipment such as oxygen masks to even 1 ppm. for 100 hours has resulted in severe deterioration. This points up the need to use such ozone resistant products as neoprene, the silicones, and hypalon. As exposure of ozone to heat for even one second will convert it to molecular oxygen, it had been hoped that the heat generated in the high-speed compressor necessary to maintain cabin pressure at altitudes in excess of 50,000 feet would destroy the ozone. Unfortunately, the very efficiency of these new compressors depends on their speed, thus reducing the contact time of air with heat to a level where less than 50 per cent of the ozone present is destroyed. There is then concern that this small concentration will be increased by placing it in the cabin atmosphere. Studies to date have been unable to accurately relate atmospheric concentrations to cabin concentrations, and better measuring devices are needed.

At approximately 80,000 feet we reach the limit of our compressors to use ambient air to produce a habitable cabin atmosphere. We must now make a *sealed cabin* possessing all the attributes of the earth which itself might be considered a large space ship. There are many problems created in providing adequate oxygen, proper temperature, control space, and removal of carbon dioxide, water vapor, odors and wastes. Studies on various parameters of sealed-cabin existence are continuing in many laboratories. Some of the early ones were done in a small chamber at the USAF School of Aerospace Medicine.

Radiation

Ionizing radiation is of interest to crew and passengers of future supersonic transports, for there are sources of such radiation in the prepared flight envelopes of these aircraft, and certainly of spacecraft. It has been fairly well accepted that there is an increasing intensity of cosmic radiation with altitude. Various authors have estimated the dosage levels of secondary cosmic radiation up to the 60,000-foot level, and there is considerable variation. This altitude is considered the lowest level to which heavy primary particles penetrate. Their energy is rapidly dissipated between 100,000 and 66,000 feet thus reducing the hazard. It is difficult to determine accurately the effect of various radiation levels reported due to lack of data and criteria for determining satisfactory RBE (relative biological effect) of the various primary cosmic particle components. Hanks[1] has given the following estimates for an aircrewman spending 80 hours per month all at the given altitudes:

50,000 feet 460 m rem/yr. (milli roentgen equivalent man)
60,000 feet 570 m rem/yr.
75,000 feet 600 m rep/yr. (milli roentgen equivalent physical)

If one doubles this dosage to account for the effect of primary particles on the cabin structure, and thus secondary radiation, you obtain 30 m rep/24 hrs. or 1,200 m rep/yr. Assigning an RBE of 1 to one-half this dose, and an RBE of 5 to the other half, the dosage becomes 3.6 rem/yr. This compares very favorably with the recommended maximum exposure of 5 rem/yr. Jones has attempted to relate radiation dosages to possible shortening of life span. Using Jones' figures and assuming that our pilot spent all his working hours at 75,000 feet for a 30-year career, he would accumulate 108 rem. This would or might result in a 540 days' or 1½ years' shortening of the life span. This could be compared to smoking 1 to 2 packages of cigarettes per day for the same period, and this is estimated to reduce the life span by 7 to 10 years. Concern has also been expressed over the possible genetic effects of exposure to cosmic radiation. Every radiation exposure of a population adds to its burden of mutations, and most of these are harmful. The dosage increment necessary to produce a doubling of the natural mutation rate has been variously estimated from 3.1 r to over 75 r. This would take generations to occur and should be of no immediate concern.

The 120,000-foot level is space equivalent also for *primary cosmic radiation*. There is a rather constant *secondary* cosmic-ray flux at ground level, but at altitude the high energy particles (80% protons, 19% alpha particles, and 1% heavy nuclei) produce dense ionization tracts in tissue characterized by collision and thin-down phenomena. The dose levels present should produce no deterrent, however, to low orbital flight (less than 500 miles). Recently some new radiation belts were described by Van Allen from satellite data. These belts are composed of either electrons or protons in the earth's

magnetic fields forming a band at the equator 1,400-3,400 miles from the earth's surface and another at 8,000 to 12,000 miles. The estimates of radiation level are 10-100 rad/hr. A great deal more information is needed about the radiation of space before intelligent conclusions can be drawn. In order to estimate biological doses, the nature, quality, and intensity of the radiation need further definition. At present it appears that either rapid transit of these areas, utilization of the polar escape routes, or ship-shielding will be necessary.

Also at 120,000 to 140,000 feet the *ultraviolet rays* reach their full unshielded potential, and protection of the eyes is necessary.

As we climb to 400,000 feet, we enter the domain of the nemesis of all TV space travelers, the *meteors*. There has been much speculation and now some data from the satellite. They have also been studied by rockets, radio, radar, light scattering and photography, and much remains to be learned. The chance of a meteor puncturing the sealed cabin atmosphere is unlikely, however; more imminent danger results from erosion of optical, and heat-collecting and -dissipating surfaces. There are multitudinous estimates of the probability of a meteorite hit, but the range of error is 10^6; so we won't concern ourselves with them. Meteorite bumpers may be used in the design of spacecraft to offer protection.

Let us now turn to problems not related to altitude. Space flight is achieved by using a propulsive force sufficient to overcome the force of gravity and the inertia of the vehicle. This thrust implies exposure of the space vehicle occupant to accelerative force. This too is no new problem, for it is encountered in aircraft flight. The magnitude of the accelerative loads do differ, however. Approximately 828 g. seconds of exposure are required for orbital velocity and 1152 g. seconds for escape velocity. The important variables in discussing any accelerative effects are (1) the direction of the force with respect to the long axis of the body; (2) position of the body with respect to its long axis; (3) initial rate of application of force to attain peak or constant value; (4) the g.-time curve of force times duration; and (5) the resistance of the body to hydraulic displacement by muscular constriction or applied counter-pressure. Human responses to the calculated g. loads necessary to achieve orbital and escape velocities have been studied on the centrifuge. They were best tolerated with the subject tilted forward at 65°. Three successive 12 g. peaks can thus be tolerated at transverse g. The re-entry profiles can also be tolerated in this position. Recent studies have concentrated on smaller accelerations (3 g.) for prolonged periods (2 days). Much more information is needed on mixed g. fields and spin or tumbling in a g. field.

Lack of "g." or weightlessness is an interesting phenomenon resulting from speed. It has been studied for brief periods (15 to 60 seconds) in the C-131 and F-100F aircraft in parabolic flight maneuvers. In the confined fighter type cockpit performance (hitting a target ring), eating, drinking, and urination have been studied. Difficulties experienced with liquids behaving like mercury in the weightless state have emphasized the need for squeeze bottles for drinking. It is possible to eat and to urinate while weightless. In the larger C-131 cabin, motility in the weightless state has been studied. Most subjects find themselves somewhat disoriented but enjoying it. It must be emphasized that the periods of weightlessness have been brief and preceded and followed by variations in the g. field which make it difficult to draw valid conclusions. We must await the first orbital manned flights to give us substantial information on this fascinating subject.

The mental stress of space flight may be much greater than the physical ones. Alteration of normal diurnal rhythms, reduced sensory input, channelized attention, and the acute requirement for constant vigilance create a formidable array of possible problem areas. These are being studied in the laboratory, and efforts are being made to anticipate and prevent as many of them as possible. The response of the astronaut to soundless, dark isolation is noted, but this is unrealistic for we will have no such spaceships.

The response of man to noise has been well studied, and we know that levels of 130 decibels produce aural pain. The launch will be a noisy event, but the capsule should be so designed that the astronaut will have little difficulty with noise. Oscillation and vibration of the capsule are expected on re-entry, and man's reactions have been studied on the vertical accelerator and shake tables. Injury is noted at the resonant frequency of the body — 5-6 cycles per second — with amplitudes exceeding 15 cm.

The hazards may be summarized in the various space-equivalent altitudes and problems.

1. Hypoxia ..... 5,000-10,000 ft.
2. Dysbarism ..... 5,000-25,000 ft.
3. Anoxia ..... 50,000 ft.
4. Ebullism ..... 61,500 to 67,000 ft.
5. Ozone ..... 70,000-120,000 ft.
6. Primary cosmic radiation ..... 120,000 ft.
7. Ultraviolet radiation .. 120,000-140,000 ft.
8. Meteors ..... 400,000 ft.
9. Sealed cabin necessary ..... 80,000-100,000 ft.
10. Acceleration stress
11. Weightlessness
12. Loneliness—isolation
13. Noise and vibration

Though the hazards sound formidable, I have no doubt that man will fly in supersonic transports and then in space vehicles to greater and greater distances. Our goal must be to support and protect these dedicated flyers and soon the traveling public, whatever the environment.

REFERENCES

1. Sells, S. B., and Berry, C. A.: Human Factors in Jet and Space Travel, New York, Ronald Press, 1961.
2. Steinkamp, G. R.; Berry, C. A., and Hawkins, W. R.: Human Factors in Supersonic Air Transport. Presented at I.A.T.A. Symposium, Montreal, Canada, April 1961.
3. Barron, C. I.; Collier, D. E., and Cook, T. J.: Observations on Simulated 12 Sec. Decompressions to 32,000 Feet, J. Aviation Med. 29:563, 1958.
4. Bryan, A. C.: Rapid Decompression in Transport Aircraft, RCAF Rept. JAM 58/3, I.A.M. Royal Canadian Air Force, Toronto, Canada, 1958.
5. Bennett, G.: Reactions and Performance of Pilots Following Decompression, Aerospace Med. 32:134, 1961.
6. Berry, C. A., and King, A. H.: Severe Dysbarism in Actual and Simulated Flight, U. S. Armed Forces M. J. 10:1, 1959.
7. Clamann, H. G.: Physical and Medical Aspects of Ozone, Chapter 9 in Benson and Strughold: Physics and Medicine of the Atmosphere and Space. New York, Wiley, 1960.

Polio vaccine program

Cincinnati's oral poliomyelitis vaccine program was, we feel, remarkably successful. With 181,784 persons receiving at least type 1 vaccine, the response of the public exceeded the expectations of all concerned. The return rates for the preschool children of 91 per cent for type 3 and 83 per cent for type 2 vaccines also were deemed greater than might be expected.

Admittedly, this program was designed to reach the residents of Cincinnati with all the appropriate devices of persuasion and promotion. The "bandwagon" appeal was exploited to the full. The presence of Dr. Sabin in our community had a strong influence in appealing to local pride. The action of private physicians in opening their offices as a public service for the program had inestimable value in gaining public confidence and participation.

Time, however, was against us in this project. There was not sufficient time to administer the same type of vaccine simultaneously in both preschool and school groups or to complete the school program before the expected poliomyelitis season. Ideally, the vaccine program should be started about November and completed before the onset of hot weather the next year.

No cause-and-effect relationship between the vaccine program and incidence of poliomyelitis in Cincinnati can be assumed, of course. Nevertheless, it is gratifying to report that no clinically diagnosed cases of the disease occurred in Cincinnati or even in Hamilton County in 1960, especially when contrasted with the 24 cases of paralytic poliomyelitis reported in greater Cincinnati during 1959.

One case of poliomyelitis was reported in the city in 1960, but onset of paralysis occurred only 13 days after the patient, a 25-year-old man, returned to this area from an extended stay in another part of the United States. He had received neither Salk vaccine nor Sabin vaccine, and he was never associated with any child who had received the Sabin vaccine. One case resembling paralytic poliomyelitis was reported in Hamilton County in September 1960, but Dr. Sabin and his staff were unable to isolate any poliovirus or to demonstrate any rise in titer of poliomyelitis antibodies. They have isolated and demonstrated infection with ECHO type 6 virus. *Eugene R. Porter, M.P.H. and R. Eugene Wehr, M.D. Oral Poliomyelitis Vaccine Program in Cincinnati. Pub. Health Rep. May 1961.*

Sequellae of Renal Trauma

E. T. Wilson, M.D.,* G. G. Curl, M.D.,†
C. K. Bobelis, M.D.,† and E. R. DiMarco, M.D.,‡ *Chicago*

We would like to emphasis that one of the most difficult decisions for the urologist is when to manage severe renal injuries conservatively and when to operate. Decision is reached on hour-to-hour observation. It is impossible to generalize in renal trauma. Each case must be treated individually and one's opinion may change rapidly. Authorities hold opinions varying from one extreme of exploring all patients when any great degree of parenchymal damage is suspected to the other of treating conservatively practically all patients. Proponents of early exploration cite the possibility of late sequellae such as infection and hydronephrosis. Those advocating conservative management believe that most explorations end with a nephrectomy, and they hope that by being conservative they will save some functioning renal tissue. All certainly agree that when there is deterioration of the patient's general condition, even with active supportive therapy, surgical intervention is indicated. An enlarging mass in the region of the kidney, a drop in blood pressure, an increase in pulse rate — all indicating rapid blood loss — are absolute indications for surgery.

Constant observation in the first few days following the injury is essential, and on follow-up possible late complications should be kept in mind. Some of the late unexpected developments are illustrated in the following cases.

Case 1

A young man who was in an automobile accident received a severe blow over the right kidney with fracture of the 9th, 10th and 11th ribs; hemorrhage into the muscles and a gross hematuria developed. Intravenous pyelograms were normal, and the hematuria subsided. The patient was discharged from the hospital on the tenth day. Twenty-one days after the accident, he was readmitted with a temperature of 103 F. and a palpable mass in the right hypochondrium. Urinalysis and an intravenous pyelogram were normal, and there was no tenderness in the right costovertebral angle. Since the mass presented anteriorly, a hematoma of the liver or abscess was considered most likely. The patient was explored through an anterior approach. There was no abnormality in the liver, but a retroperitioneal hematoma was observed. The incision was closed, the patient placed on his side, and a flank incision made. Gerota's fascia was incised, and 1000 cc. of clot were evacuated followed by rather rapid bleeding. Hot laps were packed into the wound and when removed ten minutes later, the bleeding had stopped. The kidney appeared normal and was not mobilized to avoid further hemorrhage. Subsequently, pyelograms and the urine sediment have been normal.

Case 2

The reverse in treatment is illustrated in this patient, a 10 year old girl who struck her right flank against a tree while sledding down a hill. On admission, one-half hour following the accident, her pulse was rather rapid (90 per minute); there was some tenderness along the right lower rib cage, and considerable tenderness in the right upper quadrant. Spasm of the abdominal musculature was present but no rigidity. There were no other apparent injuries, no drop in blood pressure, no palpable mass, and no tenderness in the right costovertebral angle. The patient vomited once an hour after the injury, and bowel sounds were absent. X-rays taken for fractured ribs and air under the diaphragm were negative. Hematocrit and hemoglobin indicated no blood loss of any consequence. A catheterized urine sample taken on hospital admission had an occasional red cell but no white blood cells.

Intravenous fluids were started, and a Levine

From the department of urology, Loyola University-Stritch School of Medicine, Mercy Clinics, Chicago.
**Associate professor.*
†Instructor.
‡Senior resident in urology, Mercy Hospital, Chicago.

Figure 1. Intravenous pyelogram shows nonfunction of the right kidney, but the left kidney and ureter are normal.

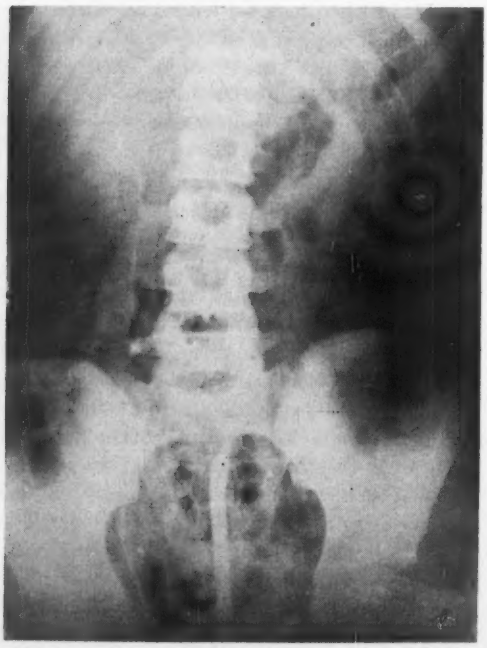


Figure 2. Retrograde pyelogram, after two weeks of chemotherapy, shows some apparently normal upper calyces on the right side. Temperature remained elevated.

tube was inserted. The child's course through the next six days remained about the same; tenderness in the right upper quadrant continued, the bowel sounds returned, her urine was normal and her temperature only slightly elevated. On the seventh day her temperature was 104 F. and her urine contained many leukocytes. The intravenous pyelogram (Fig. 1) showed nonfunction of the right kidney with a completely normal left kidney and ureter.

The patient was given Furadantin®, 100 mg., four times daily, for one week, but a culture of the urine gave a pure Proteus. For the next two weeks, she was given a course of Gantrisin®, Chloromycetin®, and Mandelamine®, but the temperature and blood count remained elevated.

On cystoscopy a few drops of purulent urine were obtained from the right ureter. No excretion of phenolsulfonphthalein dye appeared, and retrograde pyelogram (Fig. 2) showed what appeared to be some normal upper calyces. The catheter was left in the ureter for drainage, but since the temperature continued elevated for the next three days it was removed.

She then received injections of gammaglobulin, 10 cc. for the first two days and then 2 cc. daily for four days along with 250 mg. of Chloromycetin. Her temperature subsided gradually, and her urine became free of white blood cells.

The patient was discharged after seven weeks. Her urine has remained free of white blood cells for three years. Since she developed a sensitivity to the dye, no subsequent intravenous pyelograms have been made and, in a girl this age, a retrograde pyelogram would require a general anesthesia.

Case 3

Another illustrative case is that of a 7 year old girl. While wearing a snowsuit plus a coat and riding in the front seat of an automobile, the child was pushed to the floor in anticipation of a collision at a city intersection. She apparently was not seriously injured in the collision, and she remained symptom free for thirty-six hours. Then she vomited and complained of pain in her left flank. She exhibited gross hematuria and ran a temperature of 101.6 F. The child was hospitalized. A scout film of the abdomen revealed distended loops of small bowel. The chest film was clear and the blood count 3.6 million RBC, 14,000 WBC, hemaglobin, 8.9 Gm., and

Figure 3. Intravenous pyelogram five years after injury reveals destruction of the left kidney.

hematocrit, 32 per cent. The urine contained innumerable white blood cells and 100 RBC per high power field. Intravenous pyelogram was requested, but the patient's father refused. Urinalysis showed 3 to 18 white blood cells per high power field and many red blood cells. The patient was treated supportively with intravenous fluids, antibiotics, and whole blood transfusions. After a six day hospital stay, she was released at her parents' request. The patient remained symptom-free for the next several years. An occasional urine sample revealed some white blood cells. After five years an intravenous pyelogram (Fig. 3) was performed at the insistence of the insurance company before settlement of damages; it revealed considerable destruction of the left kidney with only the lower one third functioning.

In cases of renal trauma the possibility of hypertension in unilateral renal disease is always present. Occasionally hypertension is due to unilateral chronic pyelonephritis, but in the presence of normal urine sediment the possibility of blood pressure elevation is highly unlikely. There was no instance of hypertension in the follow-up studies in the reported cases.

Summary

The problem of conservative versus surgical management of renal trauma is discussed, and three cases of renal injuries are reported. In two of the cases subsequent renal damage was out of proportion to the apparent initial trauma. In the third, late hemorrhage was severe. In the case of late bleeding, the perirenal hematoma was evacuated; otherwise the cases were treated conservatively. There were no fatalities, none of the patients developed hypertension, and some renal function was preserved with conservative management.

Caloric restrictions

As part of the National Dairy Council program on nutrition research and health education, new materials are constantly being prepared with current information of interest to professional and consumer groups. Recently prepared are the "Calorie Restricted Diets for Weight Reduction" for physicians and dietitians to assist in counseling with patients having weight problems. Previously similar weight control sheets were at the 1,400 and 1,800 calorie level. The new series has been expanded to include 1,000 and 1,200 calorie levels. An explanatory sheet for the physician is also available giving him guidance in use of this material; however each diet has been outlined so clearly that a patient could understand them if an explanation was not possible. *National Dairy Council. March 31, 1961.*

Clinical-Surgical Conferences

COOK COUNTY HOSPITAL

Perforated Peptic Ulcer

MODERATOR:

ROBERT J. BAKER, M.D.

Associate Director, Department of Surgical Education, Cook County Hospital

DISCUSSANTS:

FREDERIC W. PRESTON, M.D.

Professor of Surgery, Northwestern University Medical School; Chief Surgeon, Veterans Administration Research Hospital

E. LEE STROHL, M.D.

Clinical Associate Professor of Surgery, University of Illinois College of Medicine, Attending Surgeon, Cook County Hospital

DR. ROBERT J. BAKER: The conference this morning deals with a serious complication of a disease very frequently encountered in this hospital. Perforation of a peptic ulcer represents one of two immediately life-endangering events which may occur in a patient with this disease, the other, of course, being hemorrhage. Neither of these complications is a rare occurrence, and a recent review of our material here revealed that about 1,900 perforations were treated during a 20 year span, almost 100 cases per year.

This same study[1] more significantly indicated that of 8,451 patients admitted with confirmed peptic ulcer disease, 1,904 had perforated, or approximately 22 per cent of *hospital* patients were treated for perforation. Proper emphasis has been placed on the necessity for early treatment and the consequences of delay; some other aspects of management will also be brought into focus today.

Our speakers bring with them a wide experience in this field. Dr. Frederic W. Preston is professor of surgery at Northwestern University Medical School and chief of Surgical Service at Veterans Administration Research Hospital. Dr. Preston received his early experience at the Mayo Clinic and has also been on our associate attending staff. Dr. E. Lee Strohl is a most highly regarded attending surgeon here at Cook County; he is clinical associate professor of surgery at the University of Illinois College of Medicine and attending surgeon at Presbyterian-St. Lukes Hospital.

I am certain that both speakers can shed considerable light on the more difficult aspects of the problems to be presented.

Case 1

DR. D. SNYDER, surgical resident: The patient was a 58 year old white male painter. He was admitted to the surgical service of the Cook County Hospital seven hours after onset of sudden severe pain in the epigastrium which had spread to the rest of the abdomen in 20 to 30 minutes. He took baking soda for relief but without benefit; the pain became more severe, and the patient also complained of shortness of breath.

The patient had been hospitalized on two previous occasions with severe abdominal pain and was treated with antacids, anticholinergic drugs, diet, and sedation; but he failed to follow any of the management outlined when he was discharged from the hospital.

Physical examination revealed an acutely ill patient, pallid and sweating, with a blood pressure of 100/50 mm. Hg, pulse 120 per minute, respirations 30 per minute and regular. The chest was clear except for decreased diphragmatic excursions. The abdomen was rounded, extremely tender throughout, rigid, and with diffuse rebound tenderness. A few markedly hypoactive bowel sounds were heard.

Laboratory work-up demonstrated an hematocrit of 49%, white blood count 16,800 with 78% neutrophils. There was 1+ albuminuria. Serum amylase was 16 units/100 ml., urine amylase 128 Wohlgemuth units. Blood urea nitrogen was 14 mg./100 ml. Roentgenograms of the chest and abdomen were taken.

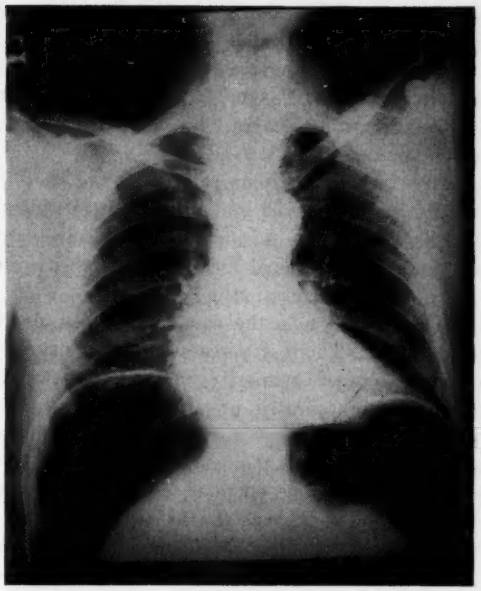


Figure 1. Upright posteroanterior view of the chest showing marked amount of free air under the hemidiaphragms indicating perforation.

DR. BAKER: Before discussing this problem, we will show the chest film (Fig. 1) obtained on admission. It shows a tremendous amount of free air beneath both hemidiaphragms. There was some question as to whether this patient had been perforated only seven hours. There were also several other interesting aspects about the case which we will ask Dr. Preston to discuss. If there were no free air, would you be deterred by the urine amylase? What would be your operative approach, and how would you prepare the patient?

DR. FREDERIC PRESTON: Earlier Dr. Baker told me that they see 80 to 90 cases of perforated peptic ulcers a year. We do not see that many at the Veterans Research Hospital. Perforation of a peptic ulcer is a serious complication of peptic ulcer. It carries with it a high mortality, and I would like to say something about that in a minute.

With regard to the amylase, I do not know what normal is for your institution.

DR. BAKER: Between 8 and 32 units in the serum, 8 and 64 units in the urine.

DR. PRESTON: I would pay attention to the serum amylase, which is within normal limits. Other things than pancreatitis cause elevation of serum amylase. Some drugs do it, morphine being one. Perforated peptic ulcer will cause an elevation because there is a high amylase content in pancreatic juice, and perforation will allow that fluid to be liberated. If the history was suggestive of peptic ulcer, I would operate regardless of the serum amylase level. If you do not have free air in the peritoneal cavity and you do have an acute abdomen which might be diagnosed as pancreatitis, the serum amylase is very important. I saw a patient just before this conference who may have a perforated peptic ulcer. We made an effort to demonstrate free air but could not. The serum amylase is normal. If the serum amylase had been significantly elevated, we might have made the diagnosis of acute pancreatitis. This illustrates how much importance is attached to this determination.

As to free air, an effort should be made to demonstrate its presence, which establishes the diagnosis of a perforated viscus. If it is not seen on the initial film, one should wait, or one can put air in the stomach via Levine tube and attempt to demonstrate it under the diaphragm in that manner. Your residents are about like I was, I imagine, when I finished my residency and was ready to go out into a community to practice. You may find that x-ray technicians

in your community don't take the films the way you want them done. It is important to have the x-ray tube at the exact level of the patient's diaphragm. If this is not done, small amounts of free air will be missed because of the angle of the x-ray.

The mortality from perforation of peptic ulcer is a bout 10 per cent in many institutions.

DR. BAKER: It is about 12 per cent here in perforated duodenal ulcer but is higher with gastric ulcer perforation.

DR. PRESTON: In the past it has been about 30 per cent. There is a reason for this drop in mortality, based primarily on better anesthesia and better preoperative preparation.

In a series of cases reported on this subject the point was made that perforated peptic ulcer does not have to be operated upon immediately after the patient gets to the hospital.[2] It is mandatory to establish the urine output, reverse the patient's hemoconcentration, correct the hypovolemia with plasma, and administer solutions containing sodium and potassium to reestablish normal electrolyte balance. If these things are done, the patient is in much better operative condition than he would be otherwise. The severe peritonitis that occurs can be reversed up to a point, and it is better to spend a few hours in correcting deficits than to operate right away. Published articles give a very interesting regime for accomplishing this. Fluid shifts in perforated peptic ulcer, just as in pancreatitis, are much greater than was appreciated in former years. There is expansion of the thiocyanate, or radioactive sodium, space which represents extracellular fluid. This may amount to four liters or more and must be taken into consideration.

Before these new methods were available, it was known that these shifts existed, but their magnitude was not appreciated. Fluid is lost into the peritoneal cavity through the perforated ulcer and by vomiting, and as a result there is an electrolyte shift. Further fluid is sequestered into the peritoneal cavity. One of the most important electrolytes is potassium, and it is the one that has been understood the least. Faulty potassium therapy has contributed to the mortality in the past. One must give potassium to these patients. At the Massachusetts General Hospital, where these data were collected, patients with perforated peptic ulcers and peritonitis were given 75 mEq. of potassium a day, and that kept them in adequate potassium balance. At our hospital we give about 100 mEq. per day. Potassium administration was in ill repute for a long time because too much can produce cardiac arrest. It must be given slowly, and the patient must be closely observed. Furthermore, potassium must be given in a dilute solution. If not enough potassium is given, complications such as ileus, alkalosis, and cardiac arrest occur. The understanding of this phenomenon has reduced mortality, and this is one reason that you have a low mortality rate here.

DR. BAKER: If you had a patient with no free air but with this elevation of amylase, what would be your management? He has a history of previous pain, but the amylase elevation suggests pancreatitis. Would you introduce air into the stomach or wait?

DR. PRESTON: There are three courses open for management of perforated peptic ulcer: (1) conservative treatment without operation, (2) operation with simple closure, and (3) gastric resection. One can get good results with any of these methods, and studying the conservative method is worthwhile, even though you do not believe in it. If there is no free air under the diaphragm, only a small perforation, if any, exists. If present, it probably is only pinpoint in size and not large enough to liberate much air. That patient will do well on conservative management. One can treat him like a pancreatitis patient and get good results. It is worth trying to demonstrate free air, and I would take another x-ray four hours later, being sure that the patient is in an upright position and being sure that the hemidiaphragms are centered on the film.

DR. BAKER: Do you inject air into the stomach?

DR. PRESTON: I have done it, but not very often. I think it is a good idea.

DR. BAKER: We do not do it ordinarily, but I don't see anything wrong with it. With regard to potassium administration, how do you replace potassium in an acutely ill patient who has only 300 cc. urinary output with a 1.010 specific gravity? If you are not sure whether renal disease is present, would you still give potassium without a good urine output?

DR. PRESTON: One of the contraindications to potassium is anuria or oliguria, and I would not give it until the patient had good urine output.

DR. FREDERIC DE PEYSTER, attending surgeon: Unfortunately, it has not been our privilege to know Dr. Roger Vaughan, who pointed out that about 85 per cent of perforated peptic ulcers in this hospital, based on a very large survey, showed free air; and the remaining 15 per cent had no air. With regard to the detection of air by roentgenologic means, our x-ray department has demonstrated that it can be done in three ways: (1) serial x-ray examination; (2) induction of air or pneumogastrium by putting air through a Levine tube, and (3) by putting the patient in a left lateral decubitus position where smaller volumes of air can be detected.

This is of historical interest only: In the years 1930 to 1936, three classical articles appeared dealing with the *forme fruste* type of perforation, edited and authored by Dr. Harry Singer and Dr. Roger Vaughan, both attending men of this institution. This type of perforation treated successfully by medical means only has been alluded to, and this is the situation where a small perforation is walled off by contiguous structures, such as the gallbladder, omentum, or liver. These patients will not ordinarily require surgery. This method was quite successful, but it does not supersede good surgical judgment, namely, acquiring the knowledge as to when to operate and repair these ulcers by direct surgical suture or some other means.

DR. BAKER: The original article is in *Surgery, Gynecology & Obstetrics,* about January of 1930, and it is an extremely interesting one.[3] Nothing has been changed in the description of the syndrome since that article was published.

Dr. Strohl, will you elaborate on some of the important points in this problem?

DR. STROHL: I would like, first, to commend Dr. Preston for his pertinent remarks. I couldn't disagree with anything he has said. His surgical principles are sound, and, if I had a perforated peptic ulcer, I would like to have someone like Dr. Preston care for me.

I would like to say a word of caution about x-rays. If you take an upright view of a patient in whom you suspect a perforated peptic ulcer, be sure that the patient is in the upright position for at least 15 minutes. We have learned the hard way, that it requires a few minutes for the air to rise within the abdomen, when the patient has been lying supine for some time.

I would also like to make a comment about the use of potassium. As you know, with regard to potassium, particularly in the older patient, we do not use it postoperatively for a period of 48 hours. However, as has been pointed out, there is a loss of potassium in these patients which must be replaced, and this should be done slowly and continuously, not intermittently.

As to when to operate upon these patients and what to do, as a fundamental, I would say the less done the better. By that I mean that once the patient is brought into optimum condition and surgery has been decided upon, I think the least that is done — namely, closing the perforation — the better the end result will be. However, recently we have been following a new regime, and I would like Dr. Preston's opinion of it. When these people appear on our ward and the perforation has been closed, we prepare for a gastric resection three weeks later, when indicated. Much to our surprise, at operation the adhesions are rather filmy and thin, and the resection can be carried out rather easily. However, if we wait six to eight weeks, the scar tissue has begun to form in many of these ulcerated areas, and it is almost impossible to get a good duodenal stump closure. So we close the perforation early, then schedule selected patients for resection later.

We do this because of the type of patient we deal with here, the socioeconomic cripples. It has been a surprise to me, having been here just about two years, to compare the patient with perforation in this institution with those we encounter at Presbyterian-St. Lukes Hospital. The patients here are economic and social cripples; they cannot and will not follow a diet; they are regular patrons of taverns. If such a patient is discharged from the hospital two weeks following closure of a perforation and nothing definitive has been done, within a short period of time many will return with ulcer complications. We had a patient about three months ago who came in with his fourth perforation of a duodenal ulcer. These patients cannot hold a job, will not follow a diet, and shortly become wards of the county. It is our duty to rehabilitate such a patient as quickly as possible. We have been very gratified with such management.

I want to say a little about definitive surgery at the time of closure. I am sure most of you are familiar with published statements that early gastric resection carries the same mortality rate as closure of a perforation. In the type of ulcer that we see here, and the type of patient we see here, that is not true. Our patients cannot withstand a formidable operative procedure in the face of peritonitis. We know the patient has a chemical peritonitis at the time he is approached, and to do a definitive resection rather than close the perforation is, to me, something to be condemned.

In terms of elevation of the amylase, I think the picture is entirely different with a perforation than it is with an acute hemorrhagic or necrotizing pancreatitis. I think the best clinical means of differentiating the two diseases can be done with the patient lying flat on his back in bed with his arms at his sides; go up to the bed and shake it. If the patient has a perforation he will invariably go into spasm with severe pain. The patient with pancreatitis does not have the same type of reaction. Frank perforation causes a chemical reaction on the peritoneum, and shaking the abdominal contents will invariably cause the patient to go into a spasm and have board-like rigidity of the abdomen. This was pointed out to me a long time ago by a superb clinician, Dr. Fred Gaarde. I have never seen it fail.

The electrolyte problem, the fluid problem, the blood substitutes, and improved anaesthesia are factors that have made the difference in the mortality rate in the disease. We are no better technically than we were 30 or 40 years ago. The armamentarium we now possess makes it possible to reduce the mortality from 25 to 10 per cent.

DR. BAKER: Suppose you operated upon this patient. What would be your procedure? Would you do anything other than close the perforation?

DR. STROHL: I would put in two or three sutures, tie them to close the defect, and pull a tag of omentum over the closure, nothing more. I use several liters of warm saline and thoroughly irrigate the abdominal cavity. In World War II in our General Hospital overseas we had wires running across the operating room with fluid in large gallon jugs, and we would slide those back and forth and irrigate continuously. I think we do not do enough irrigation of the abdomen. All the recesses must be thoroughly washed with saline, and the spillage removed.

DR. BAKER: If this were a perforated gastric ulcer, how would you manage it?

DR. STROHL: That is much the same problem. If it is on the lesser curvature and is large, with much induration about it, I would do definitive surgery at the time. I would not attempt to do a simple closure. If it were a small perforation on the gastric side that was punched out without much induration, I would do the same type of closure as with a duodenal ulcer. I had one a short time ago and thought I was dealing with carcinoma. It was 10 cm. across and 1 cm. in thickness, and I said to the house staff that it was extensive carcinoma. We did a resection, and the pathologist reported a benign ulcer. I have never seen anything like it. However, the small, clean, punched out gastric ulcer should be simply closed.

DR. BAKER: What if you had both a duodenal and gastric ulcer?

DR. STROHL: I would handle the perforation and do definitive surgery at a later date.

DR. BAKER: What about perforation of a marginal ulcer?

DR. STROHL: We had one of those this week. They are handled the same way, by a definitive operative procedure. We did a resection of the anastomotic area and vagotomy. A feeding jejunostomy and a temporary gastrostomy were also carried out.

DR. BAKER: I would like to ask the same questions of Dr. Preston. How would you handle a perforated gastric ulcer?

DR. PRESTON: I would close the perforation. About 10 per cent of gastric ulcers in most series are malignant, so I would take a biopsy, but that is all I would do.

DR. BAKER: With perforation, would you do gastric resection or vagotomy as an emergency procedure?

DR. PRESTON: We should remember that peptic ulcer is a benign disease. Most of this audience are going out into practice. It is quite likely that one of the first cases you will get will be someone—possibly the president of the local bank—with a perforated ulcer. You are at the

hospital at 6 p.m. while everybody else is playing golf. If you do a gastric resection and that patient dies, you will wish for the rest of your life that you had just closed the perforation. If you do a gastric resection, you are doing an operation that has a mortality of 7 to 15 per cent, when you could have done one with less mortality.

DR. BAKER: What about the giant duodenal ulcer in which closure would compromise the duodenum?

DR. PRESTON: I would close the ulcer with a piece of omentum. In that case, if the duodenum is obstructed after closure of the ulcer, the patient may go into a long period when he cannot eat. This is not as serious a condition as it used to be because salt-free albumin is now available. Sometimes the stomach does not drain because of stomal edema. It does not take much edema of the tissue in the vicinity of the ulcer to obstruct the duodenum. I have seen obstruction subside following 50 cc. of salt-free albumin intravenously. One can carry a patient for quite a few days and keep him from losing weight with fat emulsions and salt-free albumin and plasma; you do not have to operate on these patients right away. I had a patient with an obstructed gastroenterostomy who remained obstructed 42 days. Then the obstruction disappeared, and the patient has been all right since. Twenty years ago we thought such patients had to be operated upon right away, but this may be a fruitless undertaking.

DR. BAKER: How much fat emulsion do you give?

DR. PRESTON: About 500 ml. a day for 14 days. Then do a prothrombin time and bleeding time; if they are normal, more fat emulsion may be given. You can give 1,000 ml. a day for 7 to 10 days. I do not give more than 14 units of 500 ml. each because of changes in coagulation which may cause hemorrhage.

DR. BAKER: What about perforated marginal ulcer?

DR. PRESTON: These are rare in my experience. I suture the perforation as I would a duodenal ulcer and do a definitive procedure later.

DR. BAKER: I would like to ask some of the other surgeons here what they would do in a patient with a long ulcer history and a small anterior perforation of a duodenal ulcer without much spill?

DR. WILLIS DIFFENBAUGH: I agree with Dr. Strohl and Dr. Preston: simple closure. The only place resection is indicated is in ulcer on the gastric side with a question of malignancy. Lymphosarcoma particularly perforates on the gastric side. I would not resect gastric ulcer unless it was malignant.

DR. DE PEYSTER: It is important to remember that we are performing a life-saving measure in every instance. In answer to your question and under certain circumstances, I would do a primary gastric resection. For instance, if I had a patient I knew had a previous complication of peptic ulcer, that has now perforated, and I knew he would not follow ulcer management, for economic or other reasons, I would resect. When the perforation was recent, within a matter of an hour or so, and when there was very little spillage, and finally if the operative risk was commensurate with a gastric resection, I would then proceed with that operation.

DR. DONALD KOZOLL: I have had the experience of seeing an ulcer perforate concomitantly with other complications. I have a patient who perforated while bleeding, a situation which I feel justifies resection at a greatly added risk. We have had patients reperforate while in the hospital; certainly such an individual presents the added problem of whether he has recovered sufficiently from the previous trouble to tolerate resection. We have seen perforation stemming from steroid therapy that justified resection at the time of perforation. We have had to resect perforations of marginal ulcers, and patients with obstruction who perforated proximal to the site of the obstruction.

I would simply state that I believe some additional complications of ulcer should be present to force my hand to do resection, because I believe that 75 percent of these patients will recover and not require definitive surgery. Is it logical to subject all of them to resection to avoid a possible second operation in 25 per cent?

DR. BAKER: To facilitate the discussion, there is one more aspect of management. This patient did well for two days, and then his temperature

rose to 101.6 F. and he developed lower abdominal tenderness and distention, and a rectal mass was felt. A flat plate on the eighth postoperative day showed a discrete space-filling defect in the pelvis, representing classical pelvic abscess. Therefore, he had a complication of a complication. Dr. Strohl, what is your feeling about the management of a patients eight days following surgery with a temperature of 102 F., mild ileus, moderately septic, with a pelvic abscess?

DR. STROHL: On the eigth postoperative day, he is running a septic fever and has a mass in the pelvis. I would wait for two or three days and do a rectal examination to ascertain whether I could enter the abscess rectally. If that were not possible, I would not hesitate many days longer before doing definitive drainage. Most of these can be handled by the examining finger. That would be my first step, and if it did not establish drainage, I still might give him a little anesthesia and see if I could do it with the finger, but if not, I would do a definitive drainage procedure. I would do it transabdominally.

DR. BAKER: What about you, Dr. Preston?

DR. PRESTON: I agree that very often you can obtain drainage by rupturing the abscess with the finger. Occasionally, a loop of small bowel which is partially obstructed by adhesions may feel like an abscess, and it can be opened in error. If the anal sphincter is relaxed and there is not much question about there being a tense collection of pus under pressure, then I would drain it, under anesthesia, through the rectum. If I could not open into the abscess with the finger, I would use a knife. I would give penicillin, 4 million units a day, and 1 Gr. of streptomycin daily.

DR. BAKER: Do antibiotics affect the course of these abscesses?

DR. PRESTON: They are useful in preventing them. If you give antibiotics from the time of the perforation, you will have fewer abscesses. Abscesses may occur in spite of antibiotics and may develop after the patient goes home.

DR. BAKER: Do you think the location of the original incision has anything to do with abscess formation? Could you outline any factor that predisposes to pelvic abscess in a case like this?

DR. PRESTON: The incision in the abdomen is not a factor. Patients who are in the poorest nutritional condition are least resistant to infection. This is a more important consideration.

DR. STROHL: I doubt that I would ever use a transverse incision for closure of a perforation. I have been embarrassed a time or two by not finding a duodenal perforation, but have found another hollow viscus that has leaked. I think a right rectus incision lends itself to the proper cleaning of the abdominal cavity. I do not want to say " always" and "never," but I am inclined to use a vertical incision for that very reason. One can irrigate all the recesses of the pelvis much better than with a small transverse incision.

DR. BAKER: We like and have used the transverse or subcostal incision, but I should point out that we have been impressed with the larger number of pelvic abscesses which occurred in that group in the last two years. Dr. William Dippel, of our resident staff, reviewed all of those cases, and the most significant early sign of intraperitoneal sepsis was a temperature elevation on the third and fourth postoperative day. Our management of the abscess is conservative until the anal sphincter is lax or the patient's condition deteriorates despite conservative measures.

Transrectal drainage of pelvic abscesses depends on the lax sphincter. If sphincter tone remains but drainage is necessary, we have always used a small McBurney incision on the side that the abscess is most prominent.

I should like to pose one more difficult question: Suppose a patient whose perforation has been closed suddenly commenced to bleed massively from the upper GI tract on the sixth postoperative day, requiring 12 pints of blood in 48 hours. What would be your management?

DR. STROHL: First, try to save the patient. He has peritonitis and is hemorrhaging. You must treat the hemorrhage. You cannot defer surgery on the patient who is receiving six pints of blood daily and is still losing ground. I certainly would explore that patient. I would do a definitive procedure, possibly oversew the bleeding point, or transect the duodenum and insert a duodenostomy tube. I would do something definitive regardless of the previous peritoneal spill.

DR. BAKER: Dr. Preston, what would you do?

DR. PRESTON: I agree. I think that this is an

indication for operation. In patients with severe hemorrhage from the upper gastrointestinal tract, treatment of the hemorrhage takes precedence over everything else. Certainly the requirement of six units of blood a day to keep the patient out of shock is an indication for surgery. The frame of mind of the surgeon is important. Make up your mind ahead of time what you are going to do. If you spend four hours operating upon a patient like this, he will probably die. On the other hand, he may stand a two hour operation very well. The length of time the patient is on the operating table is a very important prognostic factor in dealing with sick and elderly patients. I would look at the duodenum and open it through a transverse incision at the level of the pylorus. If I could not find the source of bleeding after a five minute search, I would go on to the next step, which is gastric resection. If I found the source of bleeding, I would oversew the bleeding point and then proceed to resection or perhaps use a more conservative procedure such as pyloroplasty, or gastroenterostomy with or without vagotomy.

DR. BAKER: Where is this patient bleeding from, would you think?

DR. PRESTON: Not from the ulcer that was closed.

DR. STROHL: I have not seen a patient bleed from an ulcer that was closed, but perhaps there was another ulcer that was not seen at the time of closure. Remember that many patients have more than one ulcer. Just finding one ulcer does not rule out the presence of another.

DR. BAKER: When you close the perforated ulcer, do you investigate the posterior wall of the duodenum?

DR. STROHL: Yes, I do, but I will not do a Kocher maneuver just to look for a second ulcer. One can tell on palpating the area, usually. There is another sign, and that is the stippling that one sees with sponge massage of the duodenum. We use this often. Many times an old ulcer or an ulcer you do not know is present will appear with massage. We have taught most of our residents to use it; within 30 to 40 seconds it will outline the ulcer very easily and very clearly.

DR. BAKER: This patient had a posterior second ulcer at reoperation. His anterior duodenum and stomach were opened, and he had a huge ulcer. The duodenostomy was converted into a transverse pyloroplasty, the ulcer bed oversewn, and he was closed. Recovery was rapid. He did not have a gastrostomy. Would you routinely do gastrostomy in a patient like this?

DR. STROHL: Yes, and I have had no complications from it.

DR. PRESTON: Not routinely, because I have had trouble.

DR. BAKER: We have had considerable difficulty with gastrostomy. What is your technique, Dr. Strohl?

DR. STROHL: I put a Foley catheter in, usually a No. 14, and pull it up against the anterior wall of the stomach and then suture it to the anterior peritoneal wall using three catgut sutures. I always put omentum at this point. I deflate the bag within 48 hours. I have a patient who has had such a tube in place six months, and with an auxiliary jejunostomy and by using the Barron pump, he has gained 40 pounds. I do not know why you should have trouble if you attach the gastrostomy tube exit to the anterior abdominal wall and put a tag of omentum around it.

DR. BAKER: We want to thank you both very much for this enlightening and pleasant hour.

Summary and conclusions

1. Acute perforation of a peptic ulcer through all coats of the stomach or duodenum allowing free escape of gastric or duodenal content into the peritoneal cavity is the most serious complication of peptic ulcer.
2. Free perforations occur primarily in males, the ratio being 25 or 30:1, males to females. It is vastly more common between the ages of 25 and 60, though it has been reported in both extremes of age, including the newborn. No age group is truly free of peptic ulcer nor of this complication.
3. Free duodenal ulcer perforations occur four or five times more frequently than free perforation of a gastric ulcer. Most of these perforations are on the anterior wall, usually at the lesser curvature of the stomach (or superior border of the duodenum), where little walling-off by adjacent viscera can occur. About 25 per cent of all acutely perforated ulcers have no history of previous symptoms.

4. "Walled-off" perforations, or penetrating ulcers, occur with considerable frequency and probably comprise one third of so-called "intractable" ulcers, those quite resistant to medical treatment. They are usually on the posterior wall of the duodenum or along the lesser curvature on the posterior side of the stomach and are adherent to liver, pancreas, or gastrohepatic omentum.
5. The symptoms of free perforation of a peptic ulcer are usually heralded by *sudden* onset of upper abdominal pain which quickly becomes generalized. Nausea and vomiting usually follow the pain, and prostration is generally present.
6. Physical findings are classically those of a tender, rigid, silent abdomen; the patient resists change in position, preferring to lie flat and motionless. Tachycardia and normal or slightly elevated temperature are the rule; shock is *rarely* present until late in the course of the disease.
7. Approximately 80 to 85 per cent of perforated peptic ulcers will show varying amounts of free air on one of the usual "four views" of the abdomen. The left lateral decubitus film is invaluable in demonstrating small amounts of air and should never be omitted when pneumoperitoneum is being sought.
8. Surgical treatment of perforated peptic ulcer is the treatment of choice in almost all cases, especially those less than 24 hours old. The following procedures have been advocated:
   a. Simple omental graft
   b. Closure of the ulcer
   c. Excision of the ulcer and closure (with a pyloroplasty when necessary)
   d. Excision of the ulcer, pyloroplasty, and vagotomy
   e. Gastric resection

   Each has its place, but at this time, simple omental grafting with a free or living graft is the choice of most surgeons for closing the perforation.
9. An extremely important aspect of the treatment of the acute perforation at the operating table is a thorough cleansing of the peritoneal cavity of gastric or duodenal content, food, etc., by meticulous aspiration of the peritoneal gutters, pelvis, and subphrenic spaces. Some authors feel this is the most important phase of the surgical treatment.

REFERENCES

1. Kozoll, D. D., and Meyer, K. A.: Symptoms and Signs in the Prognosis of Gastroduodenal Ulcers, A.M.A. Arch. Surg. 82:528, 1961.
2. Cope, O.; Hopkirk, J. F., and Wright, A.: Metabolic Derangements Imperiling the Perforated Ulcer Patient, A.M.A. Arch Surg. 71:669 and 839, 1955; 72:166, 336, 439, and 571, 1956.
3. Singer, H. A., and Vaughan, R. T.: The "Formes Frustes" Type of Perforated Peptic Ulcer, Surg. Gynec. & Obst. 50:10, 1930.

The Beef Trust

There are many other factors and problems to be considered; I have dwelt only on a few of the most obvious. However, even this incomplete story would be lacking if two other considerations concerning the relationship of society, culture, and coronary atherosclerotic heart disease were not at least mentioned.

The first is the impact of this modern epidemic, which strikes down so many males in the prime of life, on the family structure, and on the psyche of the male as he nears the danger period confronted by the daily obituary notices of his contemporaries. The second consideration is based on the assumption that within the next decade definitive proof will be forthcoming concerning the key role of animal fats in our diet in the pathogenesis of this disease. Imagine then the socioeconomic struggle that will ensue in the effort to unseat the bull, its mate, and their by-products from the throne of the food kingdom and to replace them with fish and the stringbean. Imagine the struggle necessary to replace advertisers with responsible and scientific health advisors. Having only recently emerged scarred and nonvictorious from the battlefield of cigarette smoking versus cancer of the lung, I can testify that the dairy and beef trusts, as well as the hamburger and custard stands, will not willingly give up their vested and powerful interests. *David M. Spain, M.D. Problems in the Study of Coronary Atherosclerosis in Population Groups. Ann. New York Acad. Sc. Dec. 8, 1960.*

THE VIEW BOX

FRANZ GAMPL, M.D., *Chicago*

The patient is a Negro female, 3 years old. According to the mother, the child had not been well for the past two weeks; she had been complaining of vague pain in her stomach, diarrhea, and vomiting. At times, the child was observed to pick her hair and chew on it.

The physical examination revealed a well nourished, well developed child who was moderately dehydrated. The abdomen was tender and soft, and a mass the size of a golf ball was palpated in the epigastrium. This mass moved on respiration and palpation.

The following radiographs were obtained during a contrast examination of the upper gastrointestinal tract:

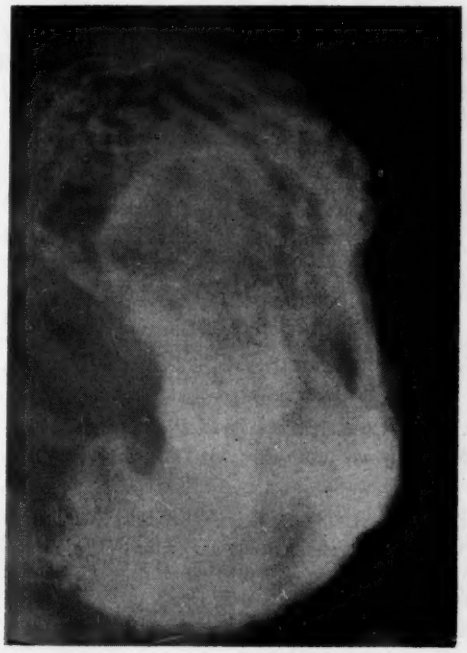


Figure 1. Posterior-anterior view

What is your diagnosis?

1) Gastric polyp
2) Leiomyoma of the stomach
3) Bezoar
4) Hypertrophic gastritis

(*Continued on page 33*)

Figure 2. Spot radiograph taken at fluoroscopy

From the radiology department, Cook County Hospital

Coffee and pregnancy

The dislike for the odor or taste of boiled or percolated coffee in one half of all pregnant patients suggests it to be a subjective symptom of an early, viable pregnancy.

Pregnant patients who develop a dislike for coffee have a very low incidence of abortions.

The "prepared coffees" were tolerated by those pregnant patients who could not tolerate boiled or percolated coffees. *Nicholas Misischia, M.D. The Dislike for Coffee as a Subjective Symptom of a Viable Pregnancy. Ohio M. J. December 1960.*

Tuberculosis in Children

A Symposium (*Concluded*)

EUGENE T. MCENERY, M.D. Moderator, *Consultant in Pediatrics, Municipal Tuberculosis Sanitarium*

WILLIAM R. BARCLAY, M.D., *Associate Professor of Medicine, University of Chicago*

M. R. LICHTENSTEIN, M.D., *Medical Director, Municipal Tuberculosis Sanitarium*

E. A. PISCZCEK, M.D., *Field Director, Suburban Cook County Tuberculosis Sanitarium District*

IRVING R. ABRAMS, M.D., *Director, Bureau of Health Services, Chicago Public Schools*

Discussion

DR. E. A. PISZCZEK: There are only two things I wish to add to Dr. Barclay's fine presentation. The 1:1,000 Old Tuberculin is the standard five tuberculin units and is similar in strength to PPD.

Secondly, right now at the World Health Organization meeting in India, an attempt is being made to prepare or make available throughout the world enough standardized tuberculin material so that it will not vary from one part of the world to another. It is hoped that this will be promoted by some of the big foundations in tuberculosis research, and will be made available to all of the health agencies in the world. Basically, then, we might be talking the same language if we use the same material, and our statistics will be comparable if we all do the same good intracutaneous test. Another criticism has been that 50 per cent of physicians cannot give a good intracutaneous test. I do not think this should apply to the pediatricians.

As you came in, there were three sets of printed materials which I left for everyone to take. First, we have a pamphlet entitled, "Risk." What is risk? Dr. Lichtenstein has talked about chemoprophylaxis in contacts to known cases of tuberculosis and recent positive reactors. We agree with the findings and recommendations of the national study which the United States Public Health Service prepared about a year ago on isoniazid prophylaxis; it indicated that chemoprophylazis will eliminate 85 per cent of this risk in the reduction of complications in children exposed to active cases of tuberculosis. One thing we have learned from sad experience is that when we find a family with tuberculosis, we must take steps immediately to protect the children. If we find the mother with tuberculosis, and there are six children, there may be three positive and three negative reactors. We have had two sad experiences because of waiting for the child contact to turn from a negative to a positive reactor before putting him on isoniazid. One went into a miliary tuberculosis right under our eyes, while the test teams said to wait for the conventional reaction. Another child went into a tuberculous meningitis. So, today we have a rule that all children intimately in contact with a member of the family who has active tuberculosis, go on isoniazid chemoprophylaxis. We have had a number of children who have converted from negative to positive reactors while on isoniazid chemoprophylaxis; but in the several hundred who have a recent positive reaction, we have yet to see any cases of tuberculosis develop while the child was in isoniazid chemoprophylaxis in doses of 5 to 10 milligrams per kilogram of body weight daily.

The second sheet which was distributed is a 365-day calendar with a message for the mother

---

Presented before Chicago Pediatric Society, Feb. 21, 1961.

of the tuberculin-positive child. This is an aid to help her give the medication regularly.

The third sheet contains some statistics on the problem of tuberculosis in suburban Cook County. It points up one of the problems of the statistics. You will note that in 1960 we hospitalized 16 child cases, but only six were reportable to the state as active cases under the present rules of reporting. Right now one of the great problems of the U.S. Public Health Service, as a result of the Arden House Conference, is to define what is a reportable case of active tuberculosis. One of its three tuberculosis subcommittees has been trying for about 15 months to define a reportable case of tuberculosis. I believe this committee will report within the next three months a standardized method of reporting by all agencies. We hope this will give us information on which to form a better analysis of our tuberculosis problem, state by state and city by city.

You will see in our statistics, we have always hospitalized most of the active cases in children, even though they might not have a positive gastric test. We know that even the best laboratories do not get more than 40 to 50 per cent confirmation of gastric tests on these cases. So we have considered other factors such as direct exposure, parenchymal x-ray changes, and clinical findings, as well as the positive tuberculin reaction.

Among our cases in suburban Cook County there was a total of 118 children during a five-year period. The interesting fact is that the highest incidence, of course, is in the group under five years of age — 56.8 per cent.

These figures point to another important factor here; that is need for early clinical recognition and isolation of the adult active case of tuberculosis. We can force hospitalization fairly well in the suburbs. One of the great problems in many of our American cities is that it takes too much force to apply the first law of good tuberculosis control and eradication, which is isolation of the active case of tuberculosis. In most of our large American cities, and in many of our Veterans Administration hospitals, patients leave against medical advice — the figures may be as high as 30, 40, or even 50 per cent. You cannot expect to have good tuberculosis control when these people can infect the population at will.

We have attempted to study the sources of infection among these child cases, and found that 34.7 per cent had contact to a case in their immediate families. This indicates why children and the entire family should be examined thoroughly if one family member is found with tuberculosis. Contact with other relatives accounted for 17.8 per cent; contact to neighbors, 5.9 per cent; and contact with baby sitters, 3.4 per cent. I might indicate in the last category that we have had baby sitters who came down with tuberculosis, and we were able to relieve the worries of the parents by putting the children on chemoprophylaxis. The group in which the source is not known is still the largest with 36.4 per cent.

We would like to see the tuberculin test done routinely on all children who enter a hospital (within at least the first 48 to 72 hours). It is very surprising how often you find a positive tuberculin test. There has been a massive increase in the suburban population in Cook County, 77.21 per cent in the last ten years. The study of these children reflects the changes taking place in our population. Of the 118 children, 10 were children of Mexican migrant workers; 1 Korean child adopted by an Army sergeant; 2 immigrants, one age 14, from Jugoslavia and the other age five, from Italy. There were 14 families each with two or more child cases.

We have tried to break the figures down to show how many children there were in the families. There were 25 cases that were only-children; 18 were one of two children; 25 were one of three children; 23 were one of four children; 17 were one of five children; 5 were one of six children; and 5 were one of seven or more children. A few years ago we had a case where 8 of 11 members of one family were found with active tuberculosis, six being in the sanitarium at the same time; the father and five of the children. Today with isoniazid chemoprophylaxis, I am sure this will not happen if the discovery of the tuberculosis is made early enough. Certainly we would recommend that all of the pediatricians routinely use the tuberculin test periodically on as many of their patients as possible. Certainly this is good medicine.

We do have a great deal of knowledge now about chemoprophylaxis with isoniazid, and also about the treatment of the disease. The earlier

we discover the disease, especially if it be miliary or meningitis, we will be able to treat those children successfully. It is unfortunate that children develop hydrocephalus or some other complication of tuberculous meningitis; and yet that does happen over and over again. Today with good preventive medicine, I am sure we can aid all these particular types of tuberculosis.

Dr. Irving Abrams: Since the fall of 1955, the Tuberculosis Institute of Chicago and Cook County has conducted a tuberculin testing program in selected Chicago schools. The Municipal Tuberculosis Sanitarium provided x-rays of reactors and their associates, follow-up, and treatment in many instances. The Tuberculosis Institute used 5 T.U., old tuberculin, which is 1/10 cc. of the material used, and compares with the intermediate strength PPD. The intracutaneous site is used. Since 1955 and the spring of 1960, 19 public high, 38 public elementary, 28 parochial high, and 35 parochial elementary schools were tested in all grades: 58,203 children in the public schools, and 24,305 in the parochial schools. This was a quality program but limited to only a few schools each year. Obviously it was not extensive, especially in view of the mobility of families and extension of low income areas.

An Ad Hoc Committee, with Dr. McEnery as chairman, was organized. For many reasons, the ninth grade was selected for testing and follow-up in all the high schools of the city, public, parochial, and private. Ninth grade involved children from 13 to 18 years of age, but mostly 14 and 15 year old pupils. This testing program has been under way for seven months and will be completed next month. This is the first time a wide study of the tuberculin status of a particular age group from all parts of the city has been completed in any one year. Let me bring you up-to-date on the school program from 1955 to the present time. (Slides were shown).

This slide shows cases and deaths from tuberculosis in Chicago for the past six years. Each succeeding year there has been a decline in total cases and deaths except in 1960, when there was a leveling-off with 1959. "A" cases, those which are active or probably active cases of tuberculosis, have decreased each year.

The next slide shows cases and deaths for one year, 1959. Note the preponderance of male cases, 2,597, over female cases, 1,256; and the male deaths, 253, over the femals deaths, 81. Note also 534 cases in children under five, and 113 cases from 5 through 14 years of age, also 9 deaths under five years, and 2 deaths from 5 through 14 years. After the 14 year age group, there is a sharp jump in cases and deaths. Of the 534 cases under five years, 35 were "A" cases and 499 were "B" cases; of the 113 cases from 5 through 14 years, 45 were "A" cases, and 68 were "B" cases. These figures indicate tuberculosis cases and deaths become a major problem as children get older.

The next slide shows cases and deaths with rates in Chicago, in Illinois, and the United States for the year 1940, and 1950 through 1959. Consistently through the years the rates per 100,000 population are higher in Chicago than in Illinois, and higher in Illinois than in the United States, except for 1959, when the mortality rate was seven per 100,000 in Illinois and in the United States.

The next slide shows shaded areas which represent the residential areas of low economic, nonwhite residents in Chicago. This is important when we look at the cases, deaths, and reactors by community areas.

The next slide shows seven community areas (75 in all) that have the highest percentage of reactors over a period of five years. Also shown are the number of cases by community areas, and the number of deaths. The highest percentage of reactors correlates with the highest number of cases and deaths by community areas with the exception of Area 60. Another area, 42, not shown on this chart, is the large West Side area recently populated by nonwhites, and in the last four years among the first seven highest community areas. This correlation is logical and indicates that where there is the greatest number of cases and deaths, there are the highest percentages of positive reactors in children.

The next slide shows that among the 58,203 students from kindergarten through twelfth grade tested in the five-year period, 1955-1960, in the public schools in Chicago, 15.8 per cent were reactors. The boys showed 16.2 per cent reactors, and the girls 15.3 per cent. Also note that there is a sharp rise in the percent of reactors as age advances. This correlates with the rise in reported cases and deaths as age advances.

The next slide shows a four-year analysis of reactors by sex, color, and age group in 14 high

schools and 32 elementary public schools in all grades. Significant is the nonwhite reactor incidence of over 18 per cent, and the white reactor incidence of 13.6 per cent.

The next slide shows the last year of the old program of testing all grades, the 1959-1960 school year. Please note that males and females have the same reactor incidence, and the nonwhite and white almost the same reactor incidence. This is only one year's statistics. Is it setting a trend? The answer is *No,* as will be seen later.

The next slide shows comparison of reactors in public schools with parochial schools in Chicago. The public schools showed 15.8 per cent reactors, and the parochial 11.6 per cent in all grades.

The next slide shows comparison of reactors in parochial and public schools of Chicago as compared with reactors in parochial and public schools in suburban Cook County for the year 1959. Consistently, the city schools are highest in percentage of reactors; also city parochial schools are higher than suburban parochial schools.

The 1961 program of ninth grade testing involves children from 13 to 18 years of age; most of the pupils are 14 to 15 years old. Approximately 38 public, and 43 parochial schools have been tested thus far. This program, as I have said, will be completed in March. Therefore, figures in *all* areas of interest are not available, but some important data have been gathered. In the public schools, 13,921 children, and in the parochial schools, 7,068 children have already been tested. There were 17.6 per cent total reactors in the public schools, and 12.02 per cent total reactors in the parochial schools. There were 14.6 per cent white reactors in the public schools, and 11.3 per cent white reactors in the parochial schools.

There were 23.2 per cent nonwhite reactors in the public schools, and 20.2 per cent nonwhite reactors in the parochial schools. The trend of equal reactor percentage in white and nonwhite in the 1959-1960 school year did not hold up, those for nonwhite reactors being significantly higher in ninth grade in Chicago schools than for white.

An interesting isolated finding is a private Jewish school where 55 ninth graders were tested, and 20, or 36.4 per cent, were reactors. This is a tremendously high percentage. Three of the 20 reactors are from out of the country — two from Trinidad, and one from Israel; the remaining 17 are from Chicago. This suggested that we look at two public high schools with a high Jewish attendance. One showed 23.1 per cent reactors and the other, 20.1 per cent. This indicates the Jewish ninth grade students are more widely infected than the average ninth grader (17.6 per cent).

It is apparent from these statistics that the nonwhite population in Chicago is the greatest seed-bed of tuberculosis. It is estimated there are about 75,000 positive reactors among whites and nonwhites in all grades in the public schools of the city. Add to this the number in the parochial schools, and the figure is staggering. No matter what progress has been made in the past, the danger of tuberculosis is real. The young tuberculin-positive children are the sources of new infection and new cases for many years to come if control measures are not exerted. The cases and deaths from tuberculosis at the adult level come from the group of children reactors of yester-year. A large part of the city population is seeded with tuberculosis to a greater extent than suburban Cook County.

More extensive and frequent testing on the part of private doctors and public and voluntary agencies is needed. More selected children should be treated with isoniazid, depending on the accepted indications, which need to be more widely and more frequently publicized. And tighter control over active cases is needed.

I would like to point out a second value of the tuberculin test. The first, of course, is its specificity in reactor finding. The second is its value in showing incidence of infectivity in neighborhoods and families from which the reactor children come. If a school, for example, has five per cent reactors, and another school 30 per cent reactors, the case finding should be intensified in the families and neighborhood of the 30 per cent reactors, because that is where the greatest number of open cases will be.

MODERATOR EUGENE T. MCENERY: Thank you, Dr. Abrams. We have one of our out-of-town neighbors from Milwaukee with us tonight. Dr. Kassowitz has done a tremendous amount of work on tuberculosis in Milwaukee, and I wonder if he would make some comparisons for us while we are collecting questions from the audience.

DR. KARL E. KASSOWITZ: I came to listen and to learn, and I have been asked to tell you something, but fortunately not statistics. I am not authorized to give you anything about Milwaukee comparable to what we have heard from Dr. Piszczek.

However, what we have attempted to do at Milwaukee Children's Hospital Outpatient Department is to start a foolproof testing program to extend at least nearly two decades. Up to the year 1952 or 1953, we have been showing a drop in the incidence of tuberculin reactions. We used the 1:1,000 Old Tuberculin, and we still use the Old Tuberculin besides the PPD, because clinically we avail ourselves of the strongest test.

We have seen in our Outpatient Department an increasing number of Mexicans, Puerto Ricans, and late European immigrants. We have seen a drop from 7 to 8 per cent to 5 and 3.5 per cent for all ages up to 14 years in these groups. Four years ago we embarked on a program of chemoprophylaxis of positive reactors aged 1 to 3. Now the age limit has been raised to 4 years.

What we are working toward is a foolproof tuberculin test at all ages. Usually we just forget about any age limit, and take it upon ourselves to instruct the mother and try to persuade her to come back after two months for more medication. We tell her if she does, her children may stay well, or they may not; nobody knows. We, therefore, are able to report, and this will be published in the Wisconsin Medical Journal in the next few months, on our experience with three years of chemoprophylaxis in all age groups. I will say that this will not be limited to the age group of low risk, between 4 and 14 years, but we will report on the indiscriminate chemoprophylaxis of all bona fide tuberculin reactors.

DR. MCENERY: Thank you, Dr. Kassowitz.

These are some of the questions from the audience: Should INH be given to everybody who has been in contact with a case of tuberculosis? One of the recent issues of the American Academy of Pediatrics Journal has an article on the use of INH. Another question we have is why do we advise INH prophylaxis for treatment?

I would like to ask Dr. Barclay how he feels about the subcutaneous testing program in the Chicago schools. Instead of changing the needle on all children being tested, we are now just flaming the needle between tests. The question has come up whether or not this is likely to increase the incidence of infectious hepatitis. Dr. Barclay?

DR. WILLIAM R. BARCLAY: There is no unanimity of opinion on this. I think it can be said that in such a program the risk of hepatitis is negligible. For instance, if the test is given by experienced people, no blood is ever aspirated into the needle, and there is no blood except a drop on the skin after the test. If the needle is flamed before the next test, this should take care of it. However, theoretically, it is possible to transmit infectious hepatitis in this way. For this reason, you may wish to insist that a new needle be used for each test. Practically speaking, the risk is negligible; theoretically, it is there.

DR. M. R. LICHTENSTEIN: Just within the past couple of years, the Committee of the American Trudeau Society, which considered the possibility of infectious hepatitis in doing tuberculin tests, said it was all right to flame the needle between tests. Here the Committee indicated that if a platinum needle is used, it can be flamed. They quoted no cases of hepatitis in many thousands tested by this method.

DR. ABRAMS: What is the relationship between attending public school and exposure to tuberculosis?

The statistics which I have presented indicate that in many instances more nonwhite children from slum areas attend public school than parochial school. The statistics also indicate that nonwhite children who attend public schools are exposed to a greater number of open cases of tuberculosis among adults and associates in their neighborhoods and homes than do children attending parochial schools.

DR. BARCLAY: I might add that at the University of Northern Illinois at De Kalb the rate of positive tuberculin reactors in the entering freshmen is less than three per cent. This is an interesting comment on the social status of the negative reactors, and the possibility of getting into college if you are a positive tuberculin reactor apparently are pretty slim.

DR. PISZCZEK: The question is: Do you recommend the tuberculin test be given in children

who are critically ill with pulmonary disease? I presume what the questioner meant was in case of pneumonia or something of that nature. I think there is no reason for not doing the tuberculin test. Certainly, if you need to do a tuberculin test in a child with critical pulmonary disease, you could start out with a 1:10,000 dilution; and if that is negative, you can repeat the test with 1:1,000. In the children in the Suburban Cook County District, we use 1:10,000, then 1:1,000, and even 1:100. There should be no contraindication to doing the tuberculin test.

Another question: Will INH prevent the conversion from a negative to a positive tuberculin reaction? We have had very sad experience in two cases. That was about five years ago when INH was first used in very early known contacts. Now it is known that it can be given to anybody who will take it, including all old cases. We now recommend it for all cases for chemoprophylaxis. We have found in a number of children that, if the mother has active tuberculosis, or the father, and there are several children under the ages of 1, 2, or 3, if they are put on INH right away, they will change from a negative to a positive reaction within three months. There will not be any clinical symptomatology of active disease within that period of time. In other words, INH did not prevent their getting a conversion from negative to positive reaction. They probably had some open lesions and germs in the system, but it takes roughly six weeks for the tuberculin test to convert from negative to positive. We are no longer waiting for the conversion. All positive reactors are put in isoniazid.

DR. LICHTENSTEIN: I have several questions. One is: What is the significance of vesicles? They merely indicate in the tuberculin test that the patient is highly allergic. It may be a recent infection, or it may be a reinfection. Frequently it just means that the patient is highly allergic. Beyond that, I think there is no significance.

Another question: How often do you repeat the test? I think in your private patients you have to use your own judgment. I think the test should be repeated in a child who has been ill with an upper respiratory infection. On the other hand, if a child goes on perfectly all right, there may be no indication for repeating the test between the ages 5 and 12. However, the Public Health Service tells us to do the test at least once a year on large groups. You can do only a few in the schools, and really this is the best way. Therefore, we are having difficulty in isolating these children and in trying to follow every child to know when he does convert.

The next question: How long do the marks from BCG vaccination last? The marks made by the multiple puncture technique may last for weeks or months, and leave no real scar.

Next: Does PAS have side reactions such as hallucinations in children? PAS does have side reactions, but not hallucinations. It may cause gastrointestinal difficulties. One should look for PAS reactions in less than one percent of persons. We have never seen it in children, only in adults, but the reactions can be quite frightening.

DR. PISZCZEK: I should like to add one comment. It is known that vesicle formation is more likely in recent immigrants. We have tested close to 300 immigrants from Europe, all of whom were brought here by religious organizations for placement. We know that the percentage of these people who will break down in the next ten years is exceedingly high. It has been observed in New York that one out of five will be tuberculin positive. We test all of these with 1:10,000. I would say that about 50 per cent have vesicles, and they take a much more massive dose than any of the American population, probably from a residue of concentrated infections over a long period of time. We are placing all of these patients under at least one year of INH chemoprophylaxis, with the hope of reducing the incidence of reactivation. It is known that such people are highly susceptible to reactivation of the disease.

DR. BARCLAY: I might say there is no experimental evidence for the use of isoniazid in treating patients with inactive disease. It is known there is less risk of local disease in the animal, but there is no clinical evidence to give any validity to that sort of treatment at this time.

DR. PISZCZEK: Time will tell.

DR. ABRAMS: The question is: Does the Board of Education conduct other programs besides tuberculosis service?

Yes, the Board of Education conducts many programs.

Another question: Does the BCG reactor enter into the statistics quoted? No, the statistics which were quoted on the ninth grade level, did not include BCG reactors.

DR. BARCLAY: Does Old Tuberculin contain a protein of the tubercle bacillus? Yes, there are the large proteins, and some protein is incorporated into the media.

At what age do you recommend doing the first tuberculin test, and how often should it be done thereafter? I do the first tuberculin test at six months, and advise doing it every six to twelve months thereafter.

How do you feel about the Vollmer test, that is, the tuberculin patch test? I think it should never be used. I think you should use the best test available.

How do you feel about the policy of having the mother read the tuberculin test herself? I prefer to read the test myself.

DR. LICHTENSTEIN: The question is: We are putting stress in the time element in starting prophylaxis. Don't you think we are overlooking an important factor in not stressing the time element in breaking contacts with infecting cases?

Of course, I am sure all of us try to break the contact promptly when we find a man or woman with tuberculosis if there is a positive sputum. There is a court order which protects children particularly, usually by a threat, to make the man or woman enter a sanitarium.

DR. MCENERY: I wish to thank all the members of the panel for their very fine presentations, and the members of the society for their participation in the discussion.

Alcohol and cholesterol

The effect of ethyl alcohol on the serum cholesterol concentration in normal man is certainly small, and high doses of ethanol are needed to produce an elevation of serum cholesterol which reaches statistical significance. However, the fact that such an increase is produced indicates that alcohol may be of some importance in maintaining high levels of serum cholesterol in individuals drinking large amounts of alcoholic beverages and subsisting on high-fat diets.

The fact that ethanol increased serum cholesterol (and other lipids) concentration in the serum of hyperlipemic individuals is important from the medical viewpoint and indicates that these patients should be advised against drinking alcoholic beverages. The same is true of essential hyperlipemic individuals and in subjects with high intrinsic cholesterol levels. The results of our experiments in men indicate that these individuals should avoid drinking of alcoholic beverages, in addition to the usual dietary measures, in order to lower their serum cholesterol levels. *Francisco Grande, M.D. and Donald S. Amatuzio, M.D. The Influence of Ethanol on Serum Cholesterol Concentration. Minnesota Med. Nov. 1960.*

Deductible health insurance

The question always arises as to whether insurance coverage with a deductible tends to hold down utilization to a significant degree. Again, I don't believe there are satisfactory statistics to prove this situation one way or another. Certainly if it has any effect, it must be in some way related to the size of the deductible and, as you know better than I do, this is a narrow line to walk since too small a deductible probably will have no effect on utilization, and too large a one will hinder patients from getting adequate care or make the insurance prepayment package unattractive and set up bad debt problems for hospitals, and political pressures for all of us to have some type of government financed care.

Since the really significant pressure for overutilization is probably found in the cases requiring diagnostic services, a change in insurance benefits to include diagnostic services out of the hospital would go a long way towards relieving this pressure and, if it can be adequately financed, would be a significant addition to the over-all availability of health services for our people. *Russell A. Nelson, M.D. Hospital Costs and Health Insurance. Health Insurance Viewpoints. April 1961.*

MEDICINE IN THE OUT-OF-DOORS

Sink or Swim

JULIUS M. KOWALSKI, M.D., *Princeton*

For millenniums man lived on the edge of water. In that period when he was a gatherer, the beach provided him a life-sustaining existence. Plants and sea animals thrived in the shallows and were readily available. Travel, exploration, and limited commerce were possible only by water before the domestication of animals and the invention of the wheel. So man was at home in this element, respected it, and of necessity learned to maintain himself in it for limited periods. Learning to swim was as mandatory for his survival as was learning to run.

But how different and shameful is the situation today in this era of pushbuttons, rapid communications, and speed. Where is the sense of achievement in mastering basic human skills, the knowledge and respect for the environment, the assurance of resourcefulness? There are literally millions in our country today who have little or no knowledge of water, thereby expressing a morbid fear of it or outright contempt. Aboard modern water crafts replete with present day engineering ingenuity, they wrap themselves in false security. All is well until the moment they are u p e n d e d and find themselves in the water — then a hostile environment to those who did not take the time nor trouble to make their acquaintance with it under more favorable conditions. Accidents don't just happen; they are unwittingly planned mistakes resulting from ignorance or misinterpretation of facts.

To reverse the upward trend of drowning accidents, let us bear in mind that it is never too late to learn. Mature judgment is an effective counterbalance to rapid, enthusiastic learning in the young. Any adult who finds himself upon water, even as an occasional boater or fisherman, should make every effort to become a swimmer or forego these soul-satisfying recreations. It is this individual, like his Sunday-driver counterpart, lacking in proficiency, who is the greatest menace to himself and others.

But it is in childhood that the die is cast for adult life. Children can learn to swim as readily as they can learn to walk. Though a few are not much beyond infancy when they learn to dog-paddle, the majority are given group instruction after becoming of school age. Now, in the tender formative years things can augur for good or bad. Forceful ducking, splashing unexpectedly with cold water, and other pranks by older playmates can turn a youngster away from water for life. It may take many days of patient training and reassurance to undo a few moments of thoughtlessness.

Likewise, the father who has always been too busy somehow, now finding that his ego is injured since his son doesn't participate in water frolicking with others says, "I'll teach that kid to swim this summer if it's the last thing I do!" won't have a swimmer. The idea is noble, but the approach is character-shattering. Unless one has — not just thinks he has — the time and ability to teach swimming, better leave this instruction to qualified personnel. Swimming and knowledge of water is not all pleasant, exhilarating, or relaxing as so many are prone to

believe. It is at rare, critical moments, often under most adverse conditions, that earlier thorough training by competent instructors will spell the difference between life or death. No price is too high for this instruction; actually, it is most modest.

The American Red Cross has been the shining beacon for swimming and life-saving in this country almost since its inception. In close cooperation with the YMCA, schools, Boy Scouts, Camp Fire Girls, summer camps, civic recreational groups and others interested in any phase of water recreation, the American Red Cross is most willing to advise or instruct. There isn't an advanced swimmer in the country who hasn't directly or indirectly benefited from American Red Cross instruction. Preparing for disaster is its business, should it befall an individual or a whole segment of the population. In many areas, American Red Cross swimming instructions are given on a county-wide basis and an inquiry at the local office will put even the most hesitant of landlubbers on the way to becoming crusted old salts.

If you don't know how to swim, inquire today and learn this summer!

Art and science of medicine

The aim of scientific medicine should remain as it is now—a diagnosis in rigorousness and precision, a rational therapy based on this sort of diagnosis and validated under as strict conditions as possible on the model of the double-blind experiment. For some time to come this medicine will be the science of specialists, who possibly will have only a limited contact with their patients and will be able to observe only a limited field—i.e., their specialty. The other medicine, which I call medical practice, will have to forgo the ambition to become as exact as her sister. Her ambition will not be so much diagnosis in precision as diagnosis in depth; and it will be many years, possibly generations, before doctors can refine their findings and their language for describing them so that it will match the achievement of scientific medicine. As their diagnosis will not be precise, objective, or scientific, the treatment based on it will not lend itself to a validation according to the model of the double-blind experiment. They will have to develop new criteria, a different kind of scientific objectivity, which may be called *whole-person pathology or whole-person medicine*, in which the main task will be to *understand the meaning for the person of the complaints and illnesses that he offers to his doctor*. The aim of therapy will then be to *enable the patient to understand himself*, find a better solution for the problem facing him, and thus achieve the integration which has not developed or has broken down because of disturbed relationship of the individual with his environment. This is the place of psychotherapy in medicine.

Looking at the situation thus, we may say that there is no need for controversy or competition between the two medicines. What must be done, however, and must be done from both sides, is to find out what sort of conditions can be treated by what kind of methods; and it is here that great difficulties have to be expected. The tacit conclusion that hospital teachers and methods are far superior to anything else will have to be revised. In many conditions it is true, but in others the patient can get more help from general practice—i.e., from proper psychotherapy. While the methods of hospital medicine are generally more successful in dramatic or critical conditions involving life or death, general practice and psychotherapy may be more effective in securing or maintaining contentment and human happiness—which is perhaps equally important. In modest terms, we may state their aim as to free people from unnecessary miseries in everyday life. *Michael Balint, M.D. The Other Part Medicine. Lancet. Jan. 7, 1961.*

The View Box—diagnosis and discussion (*continued from page 23*)

The clinical diagnosis of a large trichobezoar was confirmed by the radiographic findings. The bezoar formed a cast of the stomach lumen and moved freely on palpation and change of position.

The rough and porous surface of the hairball remained coated with barium (Fig. 3) when all contrast material had left the stomach, thus ruling out a large, soft, and pedunculated tumor. A hairball measuring 10 × 3 × 3 centimeters was removed by gastrotomy. The recovery of the patient was uneventful.

Bezoars, concretions found in the alimentary tract of animals, were once highly prized antidotes for poisons; The name in common usage now comes from the Persian "pad-zahr" meaning antidote against poison. The first description of a bezoar in man is credited to Baudamant (1777), who found them in the stomach and duodenum on autopsy. Since that time, numerous cases have been reported in the literature. Most common are the trichobezoars and phytobezoars. The latter consist of a gluelike coagulum formed by the hydrochloric acid of the stomach with vegatable matter from the unripened fruits of the persimmon family. Shellac, varnish, nails, and other indigestible matter are less frequently found as foreign bodies in the alimentary tract.

The clinical symptoms are varied, ranging from mild gastrointestinal complaints to a severe, debilitating illness. Parts of the bezoar may appear in the vomitus or in the feces.

Complications include gastric ulcer (24-75%) and intestinal obstruction (rare).

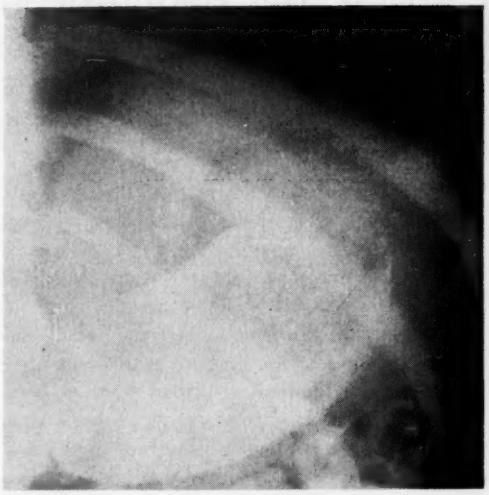


Figure 3. Follow-up study six hours after the ingestion of the contrast medium.

FURTHER READING

1. Buckstein, J.: The Digestive Tract in Roentgenology. Ed. 2, Vol. 1. Philadelphia, J. B. Lippincott Company, Pp. 330-334.
2. Edwards, J. R., Jr., and Riley, R. F.: Intestinal Obstruction Due to Persimmon Bezoar, Gastroenterology, 33:499-502 (Sept.) 1957.

The dentist and oral cancer

The dental profession is aware of its important contribution to cancer control. During the last decade, the nation's dental schools have sharply increased their emphasis of teaching in the areas of oral diagnosis, oral pathology, and related fields. Most schools now present separate courses in oncology and dental student frequently attends the hospital tumor board and outpatient clinics. The recent dental graduate has had considerable instruction in the indications for the technics of biopsy and the use of exfoliative cytology studies and is aware of most aspects of the oral cancer problem. Increasing numbers of dentists are becoming qualified in the dental specialties. In most instances their training programs include considerable emphasis in the field of neoplastic disease. The increasing popularity of dental internships provides dental graduates with additional experience with the cancer patient in a hospital environment. *Minor Turrentine, D.D.S. The Dentist and Cancer. J. M. A. Georgia. April 1961.*

Motility Disturbances Caused by Prochlorperazine

EUGENE F. DIAMOND, M.D., and NICHOLAS M. LIMPERIS, M.D., *Chicago*

The phenothiazine derivatives have earned their place as most useful and effective psychopharmacologic agents during the relatively short period since their introduction. Their use in pediatrics has been related largely to their effectiveness as antiemetic agents. The side effects of the phenothiazines are well known, and bizarre extrapyramidal disturbances have been reported[1-10]. The lability of the juvenile nervous system apparently makes children more susceptible to the extrapyramidal seizures.

The purpose of this report is to describe four cases of seizures complicating short-term phenothiazine therapy and to re-emphasize the hazard of using these drugs in the symptomatic therapy of vomiting in children. Despite an extensive campaign by one manufacturer to educate the profession, the prescribing physician did not recognize the reactions herein described. Patients in each case were admitted to the hospital with a provisional diagnosis of infectious disease of the nervous system. Cases described herein were seen at four hospitals affiliated with the Stritch School of Medicine of Loyola University.

Case 1

A 13 year old white female awoke in the morning with nausea, malaise, and a fever of 38 C. She was seen by her family physician who diagnosed gastroenteritis and gave parenteral penicillin. Four hours later, vomiting supervened, and a 25 mg. prochlorperazine suppository was prescribed. The patient became extremely agitated and complained of abdominal pain. The surgical consultant ruled out surgical disease of the abdomen and recommended that the 25 mg. prochlorperazine suppository be repeated, six hours after the original dose. The patient awoke three hours later with muscle spasms involving the neck and shoulders, and she appeared terrified. She was seen at the St. Francis Hospital emergency room, where an intern diagnosed encephalitis. Pediatric consultation was obtained. Seizures due to prochlorperazine were suspected, and treatment was instituted with caffeine sodium benzoate and barbiturate sedation. The patient gradually improved over a six hour period.

Two siblings subsequently developed a similar syndrome of fever and vomiting.

Case 2

R.N., a 20 month old white male, was admitted to Mercy Hospital with a twelve hour history of fever and vomiting. Six hours before admission he had been seen in the emergency room, where a diagnosis of pharyngitis and gastritis had been made. He was given 600,000 units of Bicillin® intramuscularly and a 2.5 mg. prochlorperazine suppository as an antiemetic. Three hours later, he developed seizures consisting of sudden rigidity of all four extremities with arching of the back. They recurred every 20-30 minutes until admission. The admission diagnosis was suspect meningitis. A spinal tap disclosed clear fluid under normal pressure with two lymphocytes per cu. mm. Sugar and protein were normal. Culture subsequently showed no growth. Prochlorperazine intoxication was then suspected. Caffeine sodium benzoate was administered intravenously; seizures subsided completely after 90 minutes. The child was treated with parenteral tetracycline 20 mg./Kg./day for his pharyngitis. He was afebrile in 48 hours and was discharged after four days.

Case 3

A 12 year old white female was examined because of fever and vomiting. Her throat was

From the pediatrics department, Stritch School of Medicine, Loyola University.

inflamed and rhonchi were heard throughout the chest. Therapy was instituted with parenteral penicillin and a 25 mg. prochlorperazine suppository every six hours. Seven hours later the patient experienced severe seizures consisting of rigidity of the upper extremities and drawing of the head to the left. She was admitted to Little Company of Mary Hospital, where a spinal tap showed clear fluid under normal pressure. The spinal fluid chemistries and cell count were normal. The child was started on phenobarbital 32 mg. every four hours; seizures gradually disappeared after 12 hours. Chest x-ray disclosed a bronchopneumonia, which was treated with parenteral penicillin and streptomycin, and the patient recovered in six days.

Case 4

A 10 month old infant with vomiting and diarrhea of two days' duration was seen by the family physician who made a diagnosis of gastroenteritis. Four hundred thousand units of penicillin and 0.5 Gm. of streptomycin was given intramuscularly and 2.5 mg. prochlorperazine suppositories were prescribed. One-half hour after the first suppository was given, the child developed seizures consisting of sudden opisthotonus with rigidity and tremors of the upper extremities. He was admitted to St. Francis Hospital because meningitis was suspected. A spinal tap was done, and the spinal fluid was found to be completely normal. Calcium gluconate, 5 ml. of a 10% solution, did not relieve the condition; similar results were obtained with caffeine sodium benzoate, 0.5 Gm, intravenously. The infant was started on Artane® Elixir 0.4 mg. every six hours; the symptoms gradually disappeared over a 12 hour period. The most striking feature of this case was the persistence of a tremor of the head, much like that seen in senile paralysis agitans, for 36 hours.

Discussion

Motility disturbances with therapeutic doses of phenothiazines have been reported to result from chlorpromazine (Thorazine®)[1,2]; promazine (Sparine®)[3]; perphenazin (Trilafon®)[4,5,6]; promethazine hydrochloride (Phenergan®)[1]; prochlorperazine (Compazine®)[1,7]; trifluoroperazine (Stelazine®)[6]; and thiopropazate (Dartal®)[7]. These disturbances have been most often observed among children being treated for acute physical illnesses,[8] but are not unknown among children being treated for psychiatric disturbances.[9] All the cases in the present report had been treated with prochlorperazine. This may reflect the popularity of this product in the community or may, on the other hand, reflect that this medication is particularly poorly tolerated by children.

We used the dosage schedule recommended by Cohlan[10] for prochlorperazine. Cases 1 and 3 represent possible overdosage reactions, but cases 2 and 4 would seem to represent true drug idiosyncrasies. It has been alleged[8] that very young children are more tolerant of phenothiazine drugs; however, both the patients in cases 2 and 4 were under two years of age. Antiparkinsonian drugs such as Artane and Cogentine® are reliable, if not dramatic antidotes. Caffeine sodium benzoate is not the specific antidote it was originally claimed to be.[8] Immediate discontinuation of the offending phenothiazine is the most important phase of therapy.

Summary

Four cases of seizures following prochlorperazine therapy are presented. All cases were originally suspected to be infectious diseases of the nervous system. Drug idiosyncrasy, as well as overdosage, is implicated in the cause of the seizures. The seizures, in every case, terminated in 36 hours or less. No permanent residuals were observed. The discontinuation of phenothiazine therapy and the use of antiparkinsonian drugs constituted the most effective management.

REFERENCES

1. Shaw, E. B., et al.: Phenothiazine Tranquilizers as a Cause of Severe Seizures, Pediatrics **23**:441, 1959.
2. Barrett, O.: Convulsive Seizures after Administration of Chlorpromazine, J.A.M.A. **166**:1986, 1958.
3. Kurtzke, J. F.: Seizures with Promazine, J. Nerv. & Ment. Dis. **125**:119, 1957.
4. Graff, T. D., et al.: Clonic Convulsions after Oral Use of Perphenazine, J.A.M.A. **169**:834, 1959.
5. Berry, R. V., et al.: Unusual Complication Following the Use of Trilafon in Children, U.S. Armed Forces M.J. **9**:745, 1958.
6. Robinson, A. S.: Neck-Face Syndrome Related to Phenothiazine Drugs, J.A.M.A. **175**:504, 1960.
7. Graham, G.: Extrapyramidal Reactions in Patients Receiving Prochlorperazine, New England J. Med. **260**:1133, 1959.
8. Goldsmith, R. W.: Toxicity of Phenothiazine Compounds (Letter to the Editor), Pediatrics **23**:1015, 1959.
9. Cares, R. M., et al.: Therapeutic and Toxic Effects of Chlorpromazine Among 3,014 Hospitalized Cases, Am. J. Psychiat. **114**:318, 1957.
10. Cohlan, S. Q.: Convulsive Seizures Caused by Phenothiazine Tranquilizers, GP **21**:136, 1960.

EDITORIALS

Phenylketonuria, "an inborn error of metabolism"

There is substantial evidence that some of the inborn errors of metabolism may cause mental retardation. Considerable attention has recently been given to this entire group of metabolic disorders since it has become known that in some of them, brain damage can be ameliorated or prevented by proper treatment.[1,2]

One of these metabolic disorders, phenylketonuria (PKU) was discovered in 1934 by Fölling[3] when he added ferric chloride to the urine of two mentally retarded siblings. The resulting color reaction was found to be due to phenylpyruvic acid.

Phenylketonuria is a recessive trait genetically transmitted. It has been estimated that the condition occurs in 1:20,000 persons and that 1:70 are carriers. About one per cent of the inmates of mental institutions have brain damage (phenylpyruvic oligophrenia) due to PKU.

The affected patients cannot metabolize phenylalanine to tyrosine due to the deficiency of a liver enzyme, phenylalanine hydroxylase. Infants born with PKU develop excessively high phenylalanine blood levels when fed either human or cows' milk. Continued ingestion of food containing large amounts of phenylalanine causes irreversible brain damage. A diet low in phenylalanine reduces the blood levels of this substance below the point of toxicity.

Phenylpyruvic acid usually appears in the urine in untreated PKU infants 4 to 6 weeks old. The lack of excretion of the substance before this time in PKU patients is believed to be due to the immaturity of the liver enzyme system which transforms phenylalanine to phenylpyruvic acid by deamination. Therefore, the diagnosis of PKU during the first month of life in suspected infants can be made only by the determination of phenylalanine blood levels.

The members of the Mental Health Committee of the Illinois Chapter of the American Academy of Pediatrics recommend that the urine of infants be tested for excessive amounts of phenylalanine at 6 weeks and again at 3 months. Children under one year of age with any of the following conditions should also be screened:[4]

1. Actual or suspected mental retardation
2. A retarded or PKU sibling
3. Nonspecific persistent diaper rash
4. Seizures
5. Peculiar odor to the urine

There are simple tests available for the detection of phenylpyruvic acid in the urine. One such test is done by applying a test paper (Phenistix®) to a recently wet diaper. When the reaction is positive, phenylalanine blood levels should be determined to establish a firm diagnosis. At the present time these determinations and being done by the laboratories of Dr. David Y. Hsia at Children's Memorial Hospital.

There are many unanswered questions concerning PKU. For example, it is not known how phenylalanine causes brain damage. Then too, there appears to be little correlation between the height of the phenylalanine blood level and the severity of brain involvement. There are a number of reports of children with proven PKU who are not mentally retarded. In some untreated children who have this metabolic disorder repeated examinations of the urine have failed to reveal phenylpyruvic acid. There is no doubt that the earlier the diagnosis is made and the low phenylalanine diet given, the better the prognosis. However, there appears to be no agreement on the length of time the special diet must be continued. Some investigators have reported that the diet may be discontinued at the age of 2 years without any deleterious effect;

others claim that it should be given for a much longer time.

The low incidence of the disease makes it unlikely that any one physician in private practice (not affiliated with a mental institution) will find more than one case of PKU in a lifetime. Yet, if every newborn infant with it were tested, 200 to 400 cases would be found each year. With proper diet, institutionalization of these children can be avoided.

The low phenylalanine diet given to PKU children should contain enough phenylalanine (15 mg./Kg.) to cover the requirements for growth. If the parents cannot afford to pay for the diet (which is expensive) they may obtain help through the Illinois Department of Public Health at Springfield.

Daniel L. Pachman, M.D.

REFERENCES

1. Rosenthal, I.M.: Treatable Inborn Errors of Metabolism, Chicago Med. 63:7, 1961.
2. Hsia, D.Y.: Inborn Errors of Metabolism, Chicago, Yearbook Publishers, Inc. 1959.
3. Folling, A.: Uber Ausscheidung von Phenylbrenztraubensaure in den Harnsals Stoffwechselanomalie in Verbindung mit Imbezillitat, Ztschr. f. physiol. Chem. 227:69-176, 1934.
4. Partington, M.W.: The Early Symptoms of Phenylketonuria, Pediatrics 27:465, 1961.

The phenothiazines

Elsewhere in this Journal is a report by Diamond and Limperis on motility disturbances in children caused by one of the phenothiazines. Last month we published an article by Zocchi and Dimitri on one of the new phenothiazine derivatives, "Effects of Fluphenazine Dihydrocholoride in State Hospital Patients." These drugs are becoming more popular; there are ten recommended mainly for the treatment of psychiatric conditions. Chlorpromazine (Thorazine®) is one of the original, whereas trifluoperazine (Stelazine®) is one of the latest. These two drugs serve as examples of differences in the way phenothiazine products act therapeutically. Trifluoperazine ameliorates the underlying psychotic process to eliminate aggressiveness and hyperactivity. Chlorpromazine calms by virtue of its sedative effect. The former product is better able to focus on specific symptoms, and in this respect may be preferred in treating a hyperactive individual suffering from delusions and hallucinations.

The phenothiazine group is used in the treatment of hyperactive psychotic disorders, acute alcoholism, head injury, and nausea of pregnancy and radiation sickness. Some patients respond better to one drug than another, and the general physician should familiarize himself with at least one or two of these major tranquilizers.

Side reactions also vary from drug to drug and patient to patient. These include allergic reactions, skin lesions, seizures, agranulocytosis, palpitation, engorgement of the breasts, depression, drowsiness, fever, symptoms of Parkinson's disease, and confusional states. Five of the drugs have a tendency in low dosage to produce extrapyramidal symptoms and, according to Steinhilber[1], three phenothiazines produce unusual reactions that should be recognized.

Perphenazine (Trilafon®), prochlorperazine (Compazine®), and trifluoperazine occasionally produce bizarre spasms of the perioral, facial neck, and back musculature. These symptoms develop suddenly, often within a few days and on low dosage. The second reaction is akathisia or forced restlessness. This varies from moderate inner tension with restless feelings in the legs to severe agitation with hyperactivity. A good response is obtained with antiparkinsonian drugs.

1. Steinhilber, Richard M., Current Practices in General Medicine. 21. An Appraisal of Tranquilizers. Proc. Staff Mayo Clinic. 36:165, (March 29) 1961.

Recruiting physicians

Approximately one fifth of all physicians have a medical family background. The majority want their offspring to follow suit, provided the youngster has the aptitude and wants to be a physician. Medical education is expensive and requires at least a decade of special study. Many of our members have talented boys and girls, and this month the Journal is featuring a list of scholarships that might lessen the financial burden on an expensive career.

The admiration of patients for the skill and goodness of their family physician will often lead them to inquire about means of securing financial aid so their children can pursue the study of medicine. This month's reference sheet should assist the physician in providing his patients with such information.

Serious professional losses

The glamour of the medical profession and the reputation of the physician have suffered during the past two decades. One of the most serious side reactions of this loss of prestige has been its adverse influence on the scientific-minded young men and women. Our population has increased; yet the number of applicants to medical schools has decreased.

There is evidence also that we no longer are attracting the better students. Dr. I. S. Ravdin was quoted recently as saying, "Where is the doctor coming from to treat patients?" And, "Many of our best young people are not going into medicine." Many bright students find other sciences more attractive. In addition, it is easier to obtain scholarships and loans for graduate study in physics and chemistry leading to the Ph.D. degree than in medicine.

Those who go into medicine face years of study and training, and many are beset by financial difficulties. Others are deterred by the adverse criticism of the medical profession from Capitol Hill and elsewhere.

This loss of students is serious because it strikes at the very foundation of the profession. It may be that those who have screamed the loudest for sweeping reforms in the practice of medicine will be forced to accept a second-rate team of their own making.

K-fusion

The Journal's advertising revenue is down considerably due to a marked curtailment of national pharmaceutical advertising. The drug firms have tightened their purse strings since Kefauver investigated the industry. There is a good possibility that the loss in revenue to the society may cost each member $5 by the end of the year — thanks to the senator from Tennessee. This is chicken feed compared to what it is costing every taxpayer to run these investigations that vary from the ridiculous to the sublime.

We know little about the motives behind congressional investigations, how the witnesses are selected, and whether the government is trying to uncover the truth or prove a preconceived idea. In dealing with costs of drugs, the committee failed to question the merchandizer, the pharmacist who sells drugs to the public. The price of the same prescription may vary considerably at different drug stores, depending upon their overhead and business acuity.

But politicians think in terms of votes: There are more drug stores than pharmaceutical companies, and the corner druggist is closer to the public.

Morris Fishbein had the following to say in an editorial, "Kefauver's Drug Bill," in Medical World News, May 26:

"The height of folly is the proposal in the Kefauver doctrine that manufacturers be required to provide physicians 'with clearer, better, and additional information on the bad as well as the good effects of drugs.' The Secretary of the Department of Health, Education and Welfare would be required to mail regularly to all physicians brochures containing lists of drugs potentially dangerous or harmful. It is also suggested that 'he may include in that list such information relating to those dangers or harmful effects as the Secretary may consider in the best interest of public health.'

"Finally, the legislation says, 'the Secretary shall have authority to determine the name of any drug as he shall find necessary or desirable in the interest of usefulness and simplicity.' This shall thereafter be the official name of that drug. Furthermore, 'no official name shall be given to any drug product which is a combination of two or more drugs.' One might as well give the Secretary of HEW the responsibility for naming all the babies born in the United States."

Sometimes when I consider what tremendous consequences come from little things—a chance word, a tap on the shoulder, or a penny dropped on a news-stand — I am tempted to think . . . there are no little things. — Bruce Barton

AT THE EDITOR'S DESK

Saving the Tax Dollar

The private psychiatric hospital is an important asset not generally appreciated by the public. Such hospitals are saving Illinois taxpayers an estimated sum of $10 million per year in direct costs. Mr. Morris B. Squire, administrator, recently called attention to the fact that Forest Hospital in Des Plaines cared for more than 200 new patients in the last three months of 1960. "We admitted more patients during that period than one state hospital which has a capacity of more than 3,000 beds compared with our 90." This turnover of patients is based on the highly individualized attention given in private institutions.

The Yellow Pages

According to Advertising News, a bill signed into law by Governor Rockefeller prohibits physicians from advertising in telephone directories, magazines or on television or "by means of flamboyant or glaring or flickering signs." The legislature indicated it passed the law to hit at advertising by plastic surgeons in the Yellow Pages.

The Complete Pre-fab Office

The Mebuco Corporation of Mansfield, Ohio, one of our latest advertisers, has introduced a new concept in office buildings. They are manufacturing completely packaged medical office buildings that can be delivered completely equipped and furnished to the purchaser's site within a few weeks from the date of order.

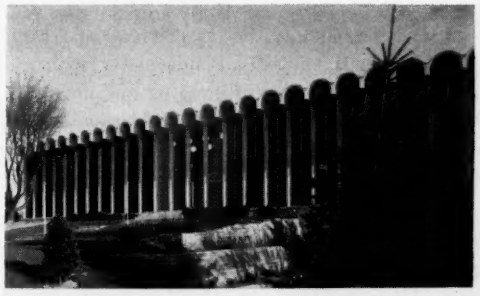
The basic building unit contains over 900 square feet of floor space with prices beginning at $20,700. It contains a surprising amount of built-in equipment including 43 built-in cabinets, air conditioning, and separate EKG circuits.

Hepatitis on the Decline

A significant decline in the number of cases of hepatitis was reported in the northern and eastern states, while a number of states in the South Atlantic, East and West South Central districts showed minimal to moderate increases.

A New Home

The Michigan State Medical Society has just completed their new headquarters building. It was designed especially for the medical associ-



ation by the internationally famous architect, Minoru Yamasaki, of Birmingham. It has three times the floor space of the former office building located in downtown Lansing.

What's New

There has been a noticeable scarcity of news items on new drug products. Instead we are receiving two to three times as many releases on instruments, office equipment, and electronic devices.

The Espey Manufacturing and Electronics Corporation has introduced a new and revolutionary electronic laryngoscope called the laryngauto-vibrascope. According to the manufacturers, it is a significant contribution to medical diagnosis in a particularly difficult area.

It is unique in that it employs the stroboscopic principle of freezing motion, which in turn permits the analytical examination of the vibrating vocal cords. The physician is thus permitted time for a detailed and clear study of the vocal cords and other areas in the throat.

Tine test unit

A new technique for administering the tuberculin test was described recently by several investigators, including Sol Roy Rosenthal, director of Tuberculosis Prevention Research, of MTS in Chicago. It is known as the Tine Test because the tuberculin is dried on steel prongs, or tines, held on the end of a plastic cylinder, and pressed into the skin. The unit is then discarded. This disposable, sterile unit was developed by Lederle Laboratories.

A new Dutch machine known as the Godart Pulmometer is basically a spirometer with a 7 liter bell. It is capable of gauging and determining the vital capacity, timed vital capacity, and maximum breathing capacity from a single forced breath.

A new abduction splint is now in production at the Fuzere' Manufacturing Company that can be used for treating congenital hip dysplasia and, in certain cases, congenital hip dislocation.

It is made of acrylic plastic material and weighs only a pound. Clear x-rays can be made while wearing the splint because of its radiotranslucency.

It allows bathing and diaper-changing without removal and is available in standard sizes for most children.

Conflicting Voices

A startling newspaper report on methotrexate in cancer chemotherapy quoted Surgeon General Luther Terry. It was in sharp contrast to the following Lederle news release that appeared a few days later: "Some of the interpretations of the Surgeon General's remarks have unfortunately given rise to overoptimism in some quarters. The two points most often misinterpreted are:

1. Methotrexate's ability to bring about five-year remissions: such results are limited to choriocarcinoma as reported recently — and only in some cases of this relatively rare form of cancer.

How's Business?

Publishers Printing Company (April) had the following to say about business: *"Note of warning on the stock market* from brokers and investment advisers: They are increasingly concerned about the mounting speculation by the public — the little man — who is jumping in with both feet, often buying risky shares.

"The experts still see increases ahead — especially as business improves. But stock prices are outstripping earnings and a shake-out could hurt many.

"The boom in farm land now seems to be over . . . for the time being, anyway. Indeed, the Department of Agriculture reports that land values fell in 1960."

Plastic Surgery for Rare Defect

A rare birth defect was reported recently by a Mayo Clinic plastic surgeon. A three year old girl had two completely formed noses. The outer nostrils of each nose were well developed, whereas the inner nostrils were smaller in size. Dr. John B. Erich removed the two middle nostrils, brought the nasal bones closer together in order to make the nose narrowed, and created a single nose with the remaining nostrils. A double thickness graft of skin from the child's abdomen was used to improve the contour.

"Little New under the Sun"

The May 26 issue of Time Magazine had a story on the use of cadaver blood for transfusion in the United States. It was used by two Pontiac pathologists, Jack Kevorkian and Glenn W. Blysma, following the patterns established in Russia.

The pathologists were of the opinion that they were applying the Russian method for the first time in the United States, but learned from a recent Bulletin of the American Association of Blood Banks "that as long ago as

1935 Surgeon Leonard L. Charpier had used a similar technique in a Chicago suburb. Dr. Charpier kept the work secret and died without writing up his records. But he was responsible for about 35 cadaver-blood transfusions in two years. Then the modern system of blood banking, which permits blood to be stored for three weeks without deterioration, was developed."

Good Old Alumni

The Minnesota Medical Alumni Association is conducting a drive for a new medical student center at their alma mater. It will include lunching and snack facilities; a lounging area; racks and lockers for temporary storage of textbooks, valuable instruments, and other material required in medical training.

It will also house a ready-room for advanced clinical medical students assigned to the medical school's new comprehensive clinical program. The students will await calls and referrals and write case reports in this area. Most physicians will read this with nostalgia. The Gophers make good alumni.

Wonderland

You can expect anything when Madison Avenue takes over your advertising. A good example is a news release on the new antiseptic anesthetic sprays, "Their miraculous action which checks infection as it stops the scream is like something out of wonderland." Oh, brother! The spray contains Xylocaine®, benzalkonium chloride, and hexachlorophene.

Pharmaceuticals

Coly-Mycin Injectable is Warner-Chilcott's new antibiotic for severe and chronic resistant urinary tract infections caused mainly by *Pseudomonas aeruginosa*. It is said also to be effective against *Escherichia coli, Aerobacter aerogenes, Klebsiella pneumoniae,* and *Brucella*. According to the manufacturers, Coly-Mycin Injectable is devoid of serious side effects at recommended dosages. It should be administered intramuscularly only.

The manufacturers report also that an increasing number of reports in medical literature emphasize that severe bacterial infections and deaths caused by *Pseudomonas aeruginosa* are on the upswing.

The Rystan Company introduced Buclamase several weeks ago. It is a buccal tablet containing 10 mg. of the enzyme alpha-amylase. The manufacturer is optimistic and claims that the product will inhibit or resolve inflammation, edema, or pain due to trauma or infection, will depress inflammatory reactions associated with allergic states, and will help overcome chronic inflammation associated with connective tissue disorders. This is a big order for any enzyme.

Many pharmaceutical companies are in the veterinary field and are doing a booming business. Turkey producers will be able to have Amprol incorporated in poult rations for the prevention of coccidiosis during the 1962 season. The unprecedented demand for Amprol is being met by Merck through a multimillion dollar program to expand production facilities.

A new dusting powder containing diphemanil methylsufate (Prantal) (Schering) is reported to be of value in hyperhidrosis of the feet. The powder is dusted into shoes and socks once daily. Ventilated shoes and socks of cotton should be worn also.

Betamethasone (Celestone) is Schering's latest steroid. It carries the claim of all newcomers in this field: "exerts its antirheumatic and anti-inflammatory activity at lower dosages than other steroids available. . . ."

Hospital Room Cooling

General Electric offers a new portable air conditioner that rolls easily from room to room and can be adjusted to fit windows at varying heights. It eliminates installation expense and the need for a cooling unit in every hospital room. It is secured to the "porta-cart's" easy-to-slide carriage and never has to be removed from it.

The Tale That Wags the Dog

According to Science News Letter, puppies will grow up afraid of and unwilling to socialize with humans when they are not handled before they are 14 weeks old.

ANNOUNCEMENTS

Annual otolaryngologic assembly

The University of Illinois College of Medicine's department of otolaryngology is offering an intensive postgraduate basic and clinical program for practicing otolaryngologists September 23-30. Directed by Dr. Emanuel M. Skolnik, it offers week-long day and evening sessions featuring a review of basic morphologic features by Drs. Maurice F. Snitman and Frederic J. Pollock. Laboratory demonstrations, dissection and prosection, luncheon chats, and panel programs on otologic and reconstructive surgery and tumors of the head and neck comprise the daily programs.

Interested physicians should write the Department of Otolaryngology, University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12.

World medical equipment on view

The latest in medical and electronic equipment from all areas of the world will be on display at the 1961 Chicago International Trade Fair at McCormick Place, July 25 through August 10.

A complete line of Austrian electrocardiographs will be exhibited in the Austria Pavilion. Manufactured by Ing. Wolfgang van Karajan, Salzburg, they include many features not regularly found on American models. Among the units will be the world's lightest portable electrocardiograph, a second portable device incorporating the characteristics of console models, and a research apparatus which allows for direct, photographic and audio recording, plus three oscilloscope tubes for continuous observation of the patient's reaction.

More than 25 countries will show their goods and services in national pavilions, and scores of individual exhibitors will display a wide variety of products from every corner of the earth. Sixty nations, including the USA, will be represented by products at the Fair, which will be held simultaneously with the Inter-American Industries and Chicago World Marketing Conferences.

Medical photographers' annual Meeting

The Biological Photographic Association will hold its annual meeting August 21-24 in Chicago's Hotel Knickerbocker. The only professional society in North America dedicated to the advancement of the skills of medical and biological photography, it has a world-wide membership of physicians, medical editors, educators, and institutional staff photographers in the fields of medicine and other biological sciences.

Mervin W. LaRue, medical motion picture producer and audiovisual consultant to the medical profession, will be general chairman. Co-chairmen will be Charles Lindsay, Loyola University's Stritch School of Medicine, and Albert Levin, Cook County Hospital.

Vacation ideas

Vacationing physicians may wish to enhance their trips this summer by taking in one of the following:

The new Confederate Medical Exhibit in Richmond, Va. offers an interesting stopover for those passing through the South this summer. It opens to the public in late July and is sponsored jointly by the Virginia Civil War Commission and the Richmond Academy of Medicine. Located in the Academy's building, the air-conditioned exhibit depicts military medicine in

Virginia during 1861-65. Across the street from it is the Confederate Museum, housed in the wartime home of President Jefferson Davis. All aspects of Confederate medical care are shown by pictures, models, reports, charts, surgical equipment, and wartime books and may be seen during the summer months of 1961-65. The Medical College of Virginia, the University of Virginia, and State dental and pharmaceutical groups have helped arrange the exhibits, including a display by the U. S. Army Medical Service.

The Law-Science Academy of America is holding a nine-week summer instructional program on "Legal Medicine and Elements of Medicolegal Litigation" June 12 to August 11 in the Law-Science Academy Hall, Crested Butte, Colo. The course is directed toward lawyers and physicians interested in personal injury problems. Dr. Hubert W. Smith is director and moderator.

Physicians are invited to attend. Each week a different course is held which relates to those preceding and following it. For further information write Dr. Smith, Chancellor, Law-Science Academy of America, Law-Science Academy Hall, Crested Butte, Colorado.

Course on law for physicians

The Board of Trustees of the American Medical Association and the home-study department of the University of Chicago have entered a joint project to prepare and present a home study course on Legal Problems in the Practice of Medicine. The course is designed to give the physician an opportunity to acquire some knowledge of the principles and operation of American law as well as the interrelationships of law and medicine. It is intended to enable physicians to avoid situations which might lead to medical professional liability actions against them and to help them recognize legal situations that might require the aid of an attorney.

Tuition is $35, exclusive of texts and selected reading material which cost about $25. Assignments should be mailed to an instructor of the home-study department for evaluation and comment and may be submitted by the registrant at his convenience within the year's span of the course. The course is also adaptable for group study.

For further details contact Desk LSE, Home-Study Department, the University of Chicago, 60th at Dorchester, Chicago 37.

Board examination schedule

The next scheduled Part I (written) examination of the American Board of Obstetrics and Gynecology will be held in various cities of the United States, Canada, and military centers outside the Continental U.S. on Friday, January 5, 1962.

Case reports are no longer required by the Board to complete the Part I examination. Each applicant and candidate for examination is required to submit a duplicate certified typewritten list of all patients admitted to or dismissed from each hospital where he or she has practiced during the year preceding application or request for examination. Obstetrical and gynecological patients are to be listed separately, and lists must conform in all details with the sample format furnished by the Office of the Secretary-Treasurer upon request. Candidates are no longer required to bring a duplicate list of admissions to the Part II examinations.

The next scheduled Part II examination (oral and pathology) with be held at the Edgewater Beach Hotel, Chicago, April 9-14, 1962.

For current bulletins write the Office of the Secretary-Treasurer, 2105 Adelbert Rd., Cleveland 6.

Pennsylvania M.D.'s, labor leaders Form joint committee

The Pennsylvania Medical Society, in an effort to improve its relations with organized labor, recently formed a permanent liaison committee of five representatives of labor and five of medicine at the state level for the purpose of discussing problems of medical care concerning both groups. The organization of similar liaison groups are also being urged at the county society level.

One of the first of its kind in the country, the committee had its initial meeting in April and will continue to meet frequently to discuss and seek solutions to mutual problems affecting the quality, distribution, and cost of medical care. The committee is a result of a pioneering conference on health care sponsored last November by

the society and attended by 50 representatives of organized labor and 50 from organized medicine in Pennsylvania.

1961 Redbook for pediatricians Released

The American Academy of Pediatrics has published the 1961 edition of the Redbook—Report of the Committee on the Control of Infectious Diseases. The manual was completely rewritten from previous editions and expanded to cover more subjects, such as drug dosages, serum reactions, newer viral diseases, and the latest thoughts on immunizations.

Part I discusses immunization procedures, giving precautions and contra-indications, active and passive procedures, and special requirements for foreign travel; Part II reports summaries of infectious diseases, from adenoviral infections through mononucleosis to tularemia. A variety of tables are included in the book, which is based on the scientific finding of pediatricians, the pharmaceutical industry, and government agencies.

SK&F grant to Vestermark Fellowships

The Smith Kline & French Foundation has made an additional grant of $10,000 for the continuance of the American Psychiatric Association's Vestermark Fellowships, under which selected medical students may expand their psychiatric knowledge.

The fellowships, named for the late Dr. Seymour D. Vestermark for his outstanding contributions to psychiatric training, provide medical students with the opportunity for full-time summer work in public mental hospitals.

The SK&F Foundation Fellowship Committee stated it was "particularly anxious" to receive applications from hospitals which have not previously participated in the program. Applications should be addressed to the SK&F Awards Committee at the APA Central Office, 1700 18th St. N.W., Washington 9, D.C.

Recruiting the physician

The American Academy of General Practice has launched Project More, a program intended to forestall a "mountingly-serious physician shortage and help block the rising cost of medical care." The AAGP feels that the nation must have more physicians if the burgeoning U.S. population is to receive full benefit from the advances in scientific medicine already achieved and those yet to come from the research laboratories. Fundamental to this system is an effective ratio of physicians to population, and a balanced distribution of practicing family physicians.

The AAGP has given its support to the segment of President Kennedy's health scheme which concerns federal aid to construction of school facilities because of the fast-approaching "physician gap" and the huge sums of money for education required to reverse it.

The academy program will be publicized at both community and national levels by various communication techniques such as radio and TV interviews and the medical press. Pilot programs in several communities will be set up and followed through on mechanics to get the program rolling.

The drive is backed by the belief that if more emphasis were placed on the importance of family practice during the undergraduate years, a correspondingly greater number of students would choose family practice as a career, thereby helping to re-establish the balance within the physician force.

Communication Institute Innovations

The Institute for Advancement of Medical Communication, headquartered in New York City, has formed a Scientific Council to guide its program of research, development, and training aimed at improving communication among biomedical scientists and health science practitioners. The council consists of 20 scientists and educators representing many of the disciplines and specialties contributing to, and using, the expanding pool of biomedical information.

The institute also opened a Washington, D.C. branch, headed by Isaac D. Welt, Ph.D., its associate director. Dr. Welt was formerly with the National Academy of Sciences - National Research Council, where he was director of the Cardiovascular Literature Project. This project

will be continued under the auspices of the Institute.

New medical films

A number of new medical films have been released which may serve as program material for county medical societies or by physicians requested to speak before lay groups. A group of those which have come to our attention follows.

A 34-minute color film, "Bronchitis and Bronchiectasis: Differentiation for Treatment," has been made by medical specialists at the Veterans Administration Hospital in Oteen, North Carolina. The movie uses case studies of two patients with chronic bronchitis and bronchiectasis and concludes that therapeutic use of antibiotics is indicated for bronchitis, while medical treatment and surgery has an 85 per cent cure rate in bronchiectasis. Medical personnel and patients at the VA Hospital are featured, and various diagnostic techniques and equipment, such as cinefluorography or "x-ray movies," are used to identify the diseases.

The film is produced by Campus Film Productions Inc., New York, and sponsored by Pfizer Laboratories, a division of Chas. Pfizer & Co., Inc. It will be distributed through Pfizer's medical film library to physicians, medical schools, and medical organizations.

A series of 16-mm. color and sound motion pictures about various aspects of physical diagnosis is available for rental or purchase from Wayne State University College of Medicine. The project was sponsored by CIBA Pharmaceutical Products Inc., although none of its products are mentioned. Requests for showing or purchase should be sent to the Audio-Visual Utilization Center, Wayne State University, Detriot 2.

"The Silent Witness" is a 27-minute motion picture dealing with chemical tests for intoxication. The "silent witness" of the movie's title is one of several commercial devices which effectively measure the alcohol in the breath. Questions and answers about alcoholism tests are discussed in the film's story of a drinking driver who is arrested, tested, and tried.

The movie was produced by the William S. Merrell Company, Division of Richardson-Merrell Inc.) in cooperation with the American Medical Association and the American Bar Association and is the sixth in a series of Merrell-AMA films on medicolegal subjects.

Prints are available through the American Medical Association's Film Library, Chicago, or the William S. Merrell Company, Division of Richardson-Merrell Inc., Cincinnati 15.

Clinics for crippled children

August	2	Alton (Rheumatic Fever), Alton Memorial Hospital
August	2	Hinsdale, Hinsdale Sanitarium
August	3	Macomb, District Hospital
August	3	Litchfield, Madison Park School
August	4	Chicago Heights (Cardiac), St. James Hospital
August	8	East St. Louis, St. Mary's Hospital
August	8	Peoria, Children's Hospital
August	9	Champaign-Urbana, McKinley Hospital
August	10	Springfield, St. John's Hospital
August	11	Evanston, St. Francis Hospital
August	15	Belleville, St. Elizabeth's Hospital
August	16	Chicago Heights (General), St. James Hospital
August	17	Elmhurst (Cardiac), Memorial Hospital of DuPage County
August	17	Rockford, Rockford Memorial Hospital
August	22	Effingham (Rheumatic Fever), St. Anthony Memorial Hospital
August	22	Peoria, Children's Hospital
August	23	Elgin, Sherman Hospital
August	24	Bloomington (A.M. - General), St. Joseph's Hospital

If the spirit of business adventure is killed, this country will cease to hold the foremost position in the world. — *Andrew W. Mellon*

Annual Meeting 1961

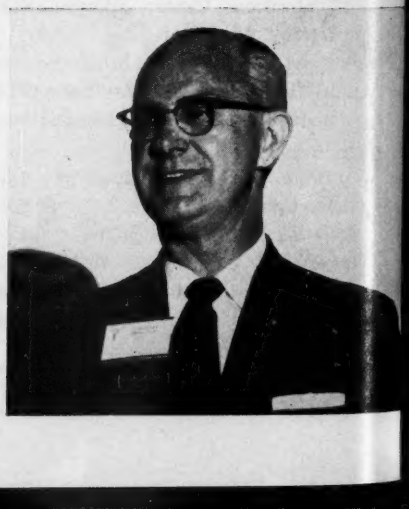
On Location

President Elect Dr. Edwin S. Hamilton and his wife (left) were guests of President H. Close Hesseltine and his wife at the president's cocktail party preceding the annual banquet.

(Left) Mrs. Frances C. Zimmer, executive assistant, at home with silver coffee set, gift of the Society, on her 25th anniversary of service. (Below) The Management Seminar Panel speakers were secretaries of county medical societies: (left to right) Howard N. Schultz, Peoria County, Dr. Allison L. Burdick, Chicago Medical Society, Floyd E. Tarbert, Winnebago County, Mr. Robert L. Richards, executive administrator and moderator, Dr. Charles Lang, DuPage County. David W. Meister, Peoria County, and Aubrey Gates, AMA, were not present for the picture.

Two old-timers, Dr. Andy Hall, (below, right) perennial chairman of the 50-Year Club banquet, and Dr. William E. Carnahan, Macomb, Ill. General Practitioner for 1960, have a few private words with each other. *(Associated Press Photo)*

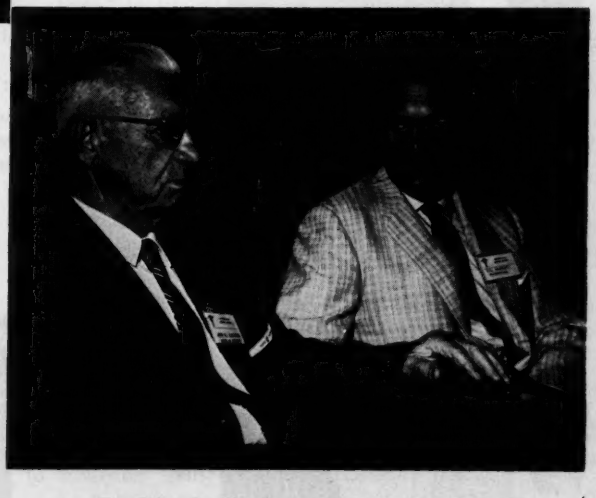
The Hon. Derwood G. Hall, M.D. (R.) Rep. 7th Congressional District, Mo. spoke on physicians' citizenship responsibilities at the Management luncheon.



(Above) One of the best attended meetings (150) was the Symposium on Neurology and Psychiatry with Dr. Louis D. Boshes, Chicago, (right) presiding. Panel members (left to right), all of Chicago, are Drs. E. E. Gordon, Oscar Sugar, and I. C. Sherman.

Dr. John B. Reckless, Durham, N. C., after delivering the Camp Memorial Lecture, talked briefly with Millie Camp Roselle.

The Drs. Rolnick, H. C. (left) and son Donald (right) are both urologists and practice together. Both attended the 50-Year Club dinner.



Dr. John O. Cletcher of Tuscola (left, above) attended his forty-ninth consecutive annual meeting of the Society this year, and Dr. W. L. Daugherty, Hutsonville, was being initiated to his first.

1

Candid Camera

3

1. Two grand old men of Chicago Medicine get tickets to 50-Year Club Banquet: Dr. Archibald Hoyne (center) and Dr. and Mrs. Walter H. Theobald.

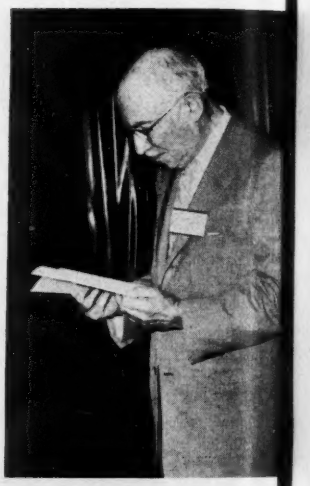
2. Weary and waiting. Mrs. Frank P. Thometz, Chicago, and grandson Martin.

3. A meeting at the Registration Desk.

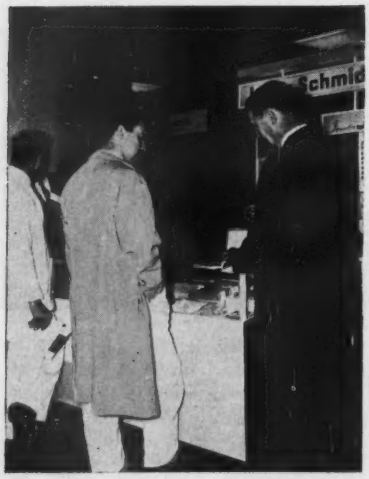
4. Medical students look over exhibit. Leon Asadourian and Joseph Daw from University of Illinois.

5. Dr. Henry A. Harlman, Kankakee, inspects American Sterilizer's power-operated table.

6. Dr. S. W. Marwitz, Chicago, checks his program.



6



4

5

NEWS of the STATE

County

Cook

Appointments

Dr. Vincent J. Collins has been appointed chairman of the department of anesthesiology at Cook County Hospital. He was recently acting director of the department of anesthesiology at the Bellevue Medical Center and associate professor of anesthesiology at New York University Medical College. He is secretary of the Section on Anesthesiology of the American Medical Association.

John M. Stagle, assistant director of Passavant Memorial Hospital for the past eight years, is the new director of the hospital. He succeeds John N. Hatfield, who is retiring after eight years as director to devote full time to his hospital consulting practice.

The Chicago Medical School has appointed retired Navy Commander David N. Goldenson, who was officer-in-charge of Navy recruiting in the Chicago district during World War II, to the newly created post of vice president for development.

He comes to head the school's development program during a new period of expansion; the almost completed $4,135,000 Institute for Medical Research is the first building on the school's West Side Medical Center campus, and several additional ones, including a College of Physicians and Surgeons structure with an expanded enrollment to take the place of the present medical school, are planned for the future.

Col. Charles P. Ward has been made Medical Advisor to the United States Military Mission with the Iranian Army. He received the Fifth Army Certificate of Achievement in a farewell ceremony at Fifth Army Headquarters, Chicago, where he had been Commanding Officer of the U. S. Army Dispensary since 1956. Previously, he had been Deputy Commander of American General Hospital, Fort Lewis, Wash. Before departing for Iran with his wife in June he attended four-week sessions of the Military Assistance Institute in Washington, D. C.

Societies announce 1961-62 officers

Dr. Franklin Lounsbury, assistant professor of surgery, Northwestern University Medical School, became president of the medical staff of Passavant Memorial Hospital, succeeding Dr. Edmund A. Gorvett, assistant professor of medicine.

Dr. Lounsbury is a fellow of the American College of Surgeons, a diplomate of the American Board of Surgery, and a member of the Central Surgical Association and the Chicago Surgical Society.

Dr. R. Burns Lewis, assistant professor of radiology at Northwestern, was named president elect of the Passavant staff, and Dr. Augusta Webster, professor of obstetrics and gynecology, was re-elected secretary.

Dr. Thomas J. Coogan, Chicago, was elected to a second term as president of the medical staff of Presbyterian-St. Luke's Hospital. Also re-elected were Dr. Edward N. Irons, Chicago, vice president; Dr. Frederic A. dePeyster, Winnetka, secretary; and Dr. Philip N. Jones, Kenilworth, treasurer.

Dr. Russell E. Elmer has been named to his second term as president of the medical staff of Swedish Covenant Hospital. Dr. E. A. Millar was re-elected vice president, and Dr. James B. McCormick was re-elected secretary-treasurer.

The Chicago Pediatric Society elected its 1961-62 officers May 16. They are Drs. James A. Conner, Hinsdale, president; I. Pat Bronstein, Chicago, vice president; Joseph R. Christian, River Forest, secretary; Harry L. Faulkner, treasurer; and Howard S. Traisman, editor. Elected to the executive committee were Drs. Noel G. Shaw, Raymond F. Grissom, and Matthew M. Steiner.

The newly elected officers of the Chicago Neurological Society are Dr. Harold R. Oberhill, president; Dr. Louis D. Boshes, vice president; Dr. Sidney Schulman, secretary-treasurer; and Dr. Ernst Haase, councilor.

The officers of the Chicago Psychoanalytic Society for 1961-62 are Drs. Gerhard Piers, president; Frances Hannett, president elect; Samuel D. Lipton, secretary; Philip F. D. Seitz, treasurer; Herman M. Serota, representative to the Executive Council; and Joseph G. Kepecs, alternate representative.

The Chicago Laryngological and Otological Society's 1961-62 officers are Drs. Linden J. Wallner, president; Bernard M. Cohen, vice president; and John J. Ballenger, secretary-treasurer.

Dr. Howard Wakefield, Chicago, was re-elected a Regent of the American College of Physicians at its annual meeting in Bal Harbour, Fla., in May.

Honors accorded

The University of Chicago School of Medicine has named John R. Green of San Francisco, a student at the University, the recipient of its annual Borden Award. A $500 check was given him at the Medical Alumni Reunion Banquet on June 8. His name will also be inscribed on a permanent plaque at the school.

Mr. Green studied the mechanism of action of an enzyme found in beef liver and devised a method of crystallizing the enzyme. He will intern at the University of Washington Hospital, Seattle, and plans to pursue a career in biochemical research.

Dr. Max K. Horwitt, associate professor of biological chemistry at the University of Illinois, has been named winner of the 1961 Osborne and Mendel Award for outstanding accomplishments in the field of nutrition research. An inscribed scroll and $1,000 was presented at the annual meeting of the American Institute of Nutrition in Atlantic City, N. J. Dr. Horwitt has recently been working on vitamin E and fatty acid metabolism and the ability of diet to change the fat composition of microcellular constituents. He has been director of the Biochemical Research Laboratory, now the L. B. Mendel Research Laboratory, at Elgin State Hospital for the past twenty-three years.

Students of the University of Illinois College of Medicine awarded six faculty members "golden apples" at recent ceremonies in the Chicago Illini Union. Each year the apples go to instructors selected by the students on the basis of the greatest degree of helpfulness, excellency, and interest in their instruction.

The senior class honored Dr. Eric Oldberg, head of the department of neurology and neurosurgery, and Dr. Max M. Montgomery, professor of medicine. Junior class awards went to Dr. Nat E. Smith, assistant professor of medicine, and Dr. Ben W. Lichtenstein, clinical professor of neurology.

The sophmore selection was Dr. Eli Tobias, assistant in neurology and neurosurgery, and the freshmen named Dr. Terrell C. Myers, associate professor of biological chemistry.

Officially titled the Raymond B. Allen Instructorship Award, it was established as a means of expressing appreciation to the faculty members who sincerely endeavor to further medical education, and the instructors so honored have their names inscribed on a permanent plaque hung in the Union.

Dr. George H. Conner, resident in otolaryngology at the University of Illinois College of Medicine, was the winner of the Norval H. Pierce Award in Otolaryngology for 1961. The award of $100 and a certificate was given by an anonymous donor for the best essay by a resident in

training in otolaryngology and is presented by the Chicago Laryngological and Otological Society.

Dr. Thomas A. Garrett, medical director of Baxter Laboratories, Inc. in Morton Grove, is one of five who received the first Alumni Medals of the Alumni Association of Villanova University, Villanova, Pa., at the association's annual banquet in June.

Dr. Howard J. Shaughnessy, head of the department of public health of the University of Illinois College of Medicine, was presented the scroll and plaque of the Illinois Public Health Association's Award of Merit for 1960. Dr. Shaughnessy, a past president of IPHA, is also chief of the Division of Laboratories of the Illinois Department of Public Health.

Dr. Grove new associate dean at Illinois

Dr. William J. Grove, associate professor of surgery at the University of Illinois since 1954, became associate dean of the university on July 1. He succeeds Dr. William F. Kellow, who left to become dean of the Hahnemann Medical College, Philadelphia.

Dr. Grove is also on the staff of Presbyterian-St. Luke's Hospital and received the "golden apple" as outstanding instructor in 1959 by the junior class of the University of Illinois Medical School.

Dr. Kellow is a board member of the Tuberculosis Institute of Chicago and Cook County and formerly was chief of medicine at Beale, Cal., Air Force Base Hospital.

Cancer research on Africans

Dr. Stephen Rothman, professor emeritus in the department of medicine at the University of Chicago, joined 15 other physicians from all over the world at Kampala, Uganda, East Africa from May 22 through May 27 to study Kaposi's sarcoma. The meeting, sponsored by the International Union Against Cancer, hoped to discover why a cancer so rare in the United States is 200 times more prevalant in Uganda.

Dr. Rothman, a staff member of the Argonne Cancer Research Hospital, operated by the University for the Atomic Energy Commission, was invited to participate by officials of the National Institute of Health and the National Academy of Sciences. He and the other international experts heard Uganda physicians reports of case histories, examined Kaposi patients, and investigated racial, tribal, infectious, nutritional, and climate factors which might offer new clues to the cause of the disease.

The International Union's Committee on Geographic Pathology first found Kaposi's sarcoma among Bantu tribesmen about 10 years ago, and while only eight cases of it have been noted in the past 15 years by the Cancer Registry at the University of Chicago, physicians in Uganda report that 10 to 12 per cent of all malignancies in some areas of equatorial Africa are of the Kaposi variety. Most U. S. reports have been on adult cases, but in Africa this disease has also been found in children, with first symptoms appearing in the lymph nodes.

Dr. Rothman lectured in Capetown, South Africa prior to his arrival in Kampala, and before returning to the U. S. addressed physicians at the University of Athens, Greece.

Grants to support studies

The Dyslexia Memorial Institute of Northwestern University Medical School has been given a two-year grant of $51,505 from the Illinois Department of Public Welfare for research on the types of reading difficulties and methods of treating them.

Since its inception in 1938, the institute, directed by Dr. George E. Park, has successfully aided 75 per cent of the more than 1,000 retarded readers under its guidance. Its staff of two physicians, a speech correctionist, a case worker, two psychiatrists, five psychologists, and three teachers examine each child and report their findings and advice to the parents, and with their consent, to the family doctor and the school.

Five grants totaling $71,359 for cancer and heart research have been awarded members of the medical staff of Presbyterian-St. Luke's Hospital by the Department of Health, Education, and Welfare and the American Cancer Society, Illinois Division.

Dr. Frances E. Knock, adjunct in surgery, and Dr. Edward J. Beattie, Jr., chairman of the division of surgery, received $29,950 from HEW for studies of cancer cell cultures as influenced by cancer treatment agents. Dr. Knock also

received a $9,450 grant from the American Cancer Society to maintain a cytogenerator.

Other HEW grants were $17,664 to Dr. Frank R. Hendrickson, director of radiation therapy, to study the effects of radiation upon the growth cycle of the individual cell; $6,238 to Drs. Steven G. Economou, D. M. Buckner, and J. Ellenby to study leakage of anticancer agents from the cancerous area of the body while isolated for perfusion with curative agents; and $8,057 to Drs. Beattie and Economou to study the circulation of blood before, during, and after repair of experimentally produced aneurysms of the heart.

Presbyterian-St. Luke's Hospital will devote one million dollars to research during the fiscal year out of its annual 16 million dollar budget.

The medical staff at the hospital is required by its by-laws to devote a substantial portion of time to nonremunerative service, which may be teaching, research, administrative work, or public service.

University diagnostic center dedicated

The new $1,480,000 Goldblatt Pavilion of the University of Chicago was dedicated June 1 at a dinner in the Great Hall of the Pick-Congress Hotel, Chicago. Dr. Jonas Salk, professor of medicine at the University of Pittsburgh, spoke on "The Biological Basis of Disease and Behavior."

The three-story building linking Chicago Lying-In Hospital and Billings Hospital will serve as the diagnostic center for the University's medical facilities.

Illini to build laboratory

The University of Illinois will construct an $800,000 laboratory on the Urbana Campus to facilitate research in lipid metabolism, the earlier neglect of which has hampered operational programs aimed at the control and eradication of degenerative diseases.

Currently a training program in lipid metabolism and nutrition is being carried out at the university under the direction of Professor F. A. Kummerow of the department of food chemistry.

Madison

Dr. Edward H. Reinhard, professor of medicine, Washington University School of Medicine, spoke on "Current Chemotherapy of Cancer" at the June 6 meeting of the Madison County Medical Society in East Alton.

Vermilion

Dr. Hiram E. Ross, Hinsdale, received the fifty year pin and emblem of the Illinois State Medical Society from Dr. Harlan English at the May meeting of the Vermilion County Medical Society. His many accomplishments, activities, and services during his fifty years of medicine were cited, and he was given a rising vote of appreciation by the society.

General

Old-timers have their day

The 50-Year Club held its annual luncheon May 16 with 161 members and guests on hand to see the awarding of framed certificates of membership and lapel emblems to new members. Dr. Andy Hall, chairman since 1938, assisted by Dr. E. A. Piszczek, chairman of the Council, made the presentations to the 23 new members present. Twenty-five downstate members and 16 from the Chicago area who were not in attendence had already received their membership insignia or were sent them by mail. Those physicians from Chicago taken into the Club at the meeting were

Paul G. Dick	Samuel M. Morwitz
Edward F. Fox	John B. Nardi
Murray M. Fuchsmann	Harry C. Rolnick
Franklin R. Huckin	Abel P. M. Sandahl
David J. Jones	Otto H. Schulz
Boleslasu K. Lazarski	James Shaynin
Adolph M. Magnus	Don C. Sutton
Franklin B. McCarty	Walter H. Theobald

Others there to receive their certificates and pins were Drs.

Harry J. Dooley and John J. Sprafka, Oak Park	Martin H. Merbitz, McKinney, Texas
Frank H. Lally, Blue Island	James Patejdl, Palos Park
	Robert L. Reynolds, Franklin Park

Hugh M. Leaf, Elmwood Park

Dr. Percival Bailey was the luncheon speaker and gave an informal talk containing "many

wild yarns on Dr. Hall's earlier days in Mt. Vernon." Dr. Bailey was himself delivered by Dr. Hall.

Dr. Hall had a surprise during the luncheon when Dr. H. Close Hesseltine, ISMS president, gave him the American Medical Association's gold medallion for America's Outstanding General Practitioner of the Year. When the AMA learned that Dr. Hall had lost the first one awarded him in 1949, it ordered another as a replacement.

Mrs. Zimmer honored for 25 years with Society

Mrs. Frances Zimmer, executive assistant of the Illinois State Medical Society, received a silver tray and tea service in commemoration of her twenty-five years with the Society at the May 16 evening session of the House of Delegates during the annual meeting at the Sherman Hotel. Dr. Edwin S. Hamilton, new president of the Society, was chosen to make the presentation because he is the only member of the present Council who was a councilor (11th district) when Mrs. Zimmer first joined the staff.

In January 1936 she took a temporary job at the Society's main offices in Monmouth; her stay lengthened into 25 years, during which she took on any and every task that needed doing. There were many such duties since the only other person in the office when she began was Mrs. Elizabeth Wayland, who later left after 19 years with the Society. Mrs. Zimmer remained at the Monmouth office until May 1960 when she came to the Society's new headquarters at 360 N. Michigan Ave., Chicago.

Ob-Gyn certifications to Illinois physicians

The Illinois physicians certified as specialists by the American Board of Obstetrics and Gynecology in April are as follows: Drs. Adnan B. Baydown, Clarence A. Lathrop, Paul E. Lawler, Robert B. Pildes, Ference H. Samos, Hans Wachtel, and Jasper F. Williams, Chicago; Raymond Annis, Vincent S. Digiulio, and John J. McLaughlin, Joliet; Ralph K. Brooks, Great Lakes; Alfred J. Dowe, Waukegan; Holden K. Farrar, Winnetka; Jerome A. Kharasch, Forest; Larry McGowan, Decatur; Edwin E. Nyman, La Grange; Robert L. Sullivan, Galesburg; and David R. Welsh, Rockford.

Student AMA Resolutions

Among the resolutions passed by the House of Delegates of the Student American Medical Association at its 1961 meeting were

1. Support of the Kerr-Mills act
2. Opposition to compulsory social security for physicians.
3. Opposition to the King-Anderson Bill and similar legislation.
4. Disapproval of federal scholarships for medical students until other sources are completely explored.
5. In favor of intern and resident salaries reflecting educational achievements, the services rendered, and responsibilities accepted.

Physicians on state board

Four physicians have been appointed by Governor Kerner to the Board of Vocational Education in the Division of Vocational Rehabilitation of the Department of Public Health. They are Drs. William Gellman and Rilma Buckman, Chicago; Guy Renzaglia, Carbondale; and Edward I. Elisberg, Highland Park.

Dr. Gellman, executive director of the Jewish Vocational Services and Employment Center, Chicago, was made chairman. Dr. Elisberg is attending physician at Cook County and Highland Park hospitals and an associate in medicine at Northwestern University Medical School.

Dr. Renzaglia has been director of the Rehabilitation Institute and associate professor of psychology and guidance at Southern Illinois University for six years. Dr. Buckman is senior associate executive secretary of the health division of the Welfare Council of Metropolitan Chicago.

Blue Shield payments for 1960

The medical profession in 1960 received $731,131,187 from the 74 nationwide Blue Shield Plans for care of members, the National Association of Blue Shield Plans reported in June.

The amount represented an all-time high for a one-year period, and also represented nearly

90 per cent of the total 1960 income of these medical-surgical plans; less than 10 per cent of the total 1960 income was devoted to administrative expenses.

In its report, the national association indicated that Blue Shield payments to the medical profession had increased from nearly $116,000,000 in 1950 to the 1960 figure of $731,131,187.

State society elections

The Illinois Psychiatric Society elected its 1961-62 officers at a recent meeting. They are Drs. Melvin Sabshin, president; Lester Rudy, president elect; Harold Visotsky, secretary-treasurer; and Joel S. Handler and John Adams, councilors. Dr. Jewett Goldsmith was elected the delegate to the American Psychiatric Association Assembly. All are from Chicago.

The following 1961-62 officers of the Illinois Surgical Society were recently elected: Drs. Charles B. Puestow, president; Richard H. Lawler, vice president, both of Chicago; Kenneth H. Schnepp, Springfield, president elect; Charles E. Baldree, Jr., Belleville, vice president elect; W. James Gillesby, Hines, secretary; and Louis P. River, Oak Park, treasurer.

The Illinois Association of Blood Banks elected Drs. John Maloney, Bloomington, president for 1961-62. Other officers, all of Chicago, are Frank Trobaugh, Jr., president elect; William Mavrelis, vice president; and Morris Goldenberg, secretary-treasurer. Members of the Executive Committee are Dr. Douglas Huestis, Miss Shirley Busch, and Dr. Max Appel.

Legislation to benefit mentally ill

The Public Welfare Advisory Committee has endorsed Governor Kerner's recommended legislative proposals for effective treatment of mental illness in Illinois.

The Proposals include the reorganization of the Department of Public Welfare into the Department of Mental Health and the creation of a commission to study all aspects of the care, treatment, and assistance services for children and their families.

The committee also allocated the disposition of the $150 million Public Welfare Building Bond Issue approved by voters last November; $90 million is scheduled for rehabilitation and construction of existing facilities, $50 million has been reserved for future programming, and $10 million will be used to build a mental institution at Centralia.

The Illinois physicians inducted are John N. Schuetz, Blue Island; Uwe E. Freese and Warren H. Staley, Chicago; Charles D. Collins, Chicago Heights; Larry McGowan, Decatur; Francis P. Weyrens, Galesburg; Alan B. Sampson, Oak Park; Jerome A. Kharasch, Park Forest; and John Standard, Springfield.

Medical research essay contest winners

Twenty five high school students received prizes for their essays, "The Value of Animal Experimentation," at the annual meeting of the Illinois Junior Academy of Science in Urbana in May. The purpose of the contest, cosponsored by the Illinois Society for Medical Research and the ISMS, is to stimulate interest among students in careers in research and to inform them of the humane nature, value, and the necessity for the use of animals in these sciences. Winners, chosen from 662 entries, were as follows:

1st Place: Julie Shamvan, Oak Park and River Forest High School, $200 U.S. Savings Bond

2nd Place: Anita Cudia, Resurrection High School, Chicago, $100 bond

U.S. Savings Bonds of $25 were awarded to Kenneth Kober, Lane Technical High School, Chicago; Paul Ingevaldson, Immaculate Conception High School, Elmhurst; Erick A. Johnson, Oak Park and River Forest High School; Laurel Kolski, Nazareth Academy, LaGrange; Mary Ann Milkowski, Notre Dame High School, Chicago; James Miller, J. S. Morton High School—West, Berwyn; Barbara Campbell, St. Edward Central Catholic High School, Elgin; and Spencer Malecha, Griffin High School, Springfield.

Fifteen other students received $5 cash awards.

Deaths

TRUMAN ANDERSON, retired, Chicago, a graduate of the Hahnemann Medical College and Hospital in 1918, died April 12, aged 67. He had practiced for 40 years in Chicago's Roseland area

before retiring 8 years ago and during both World Wars was a commander in the Navy Medical Corps.

FREDERICK N. BUSSEY*, Chicago, a graduate of the Rush Medical College in 1925, died May 24, aged 60. He was on the staff of Ravenswood Hospital and a member of the American College of Surgeons.

OSCAR A. DAHMS, Chicago, a graduate of the Rush Medical College in 1900, died May 18, aged 82. For 25 years he served on the Chicago board of health and from 1908 to 1923 was president of the Davenport board of education.

ULYSSES G. DAILEY*, Chicago, a graduate of the Northwestern University Medical School in 1906, died April 22, aged 75. He was emeritus chief of the surgical staff of Provident Hospital and a fellow of the American College of Surgeons. After studying in London, Paris, Berlin, and Vienna he returned to Chicago to become a lecturer in anatomy at Northwestern University Medical School, remaining there many years. He had been an associate editor of the Journal of the International College of Surgeons and in 1952 was named to the board of trustees of the College. He was a former member of the Mayor's Commission on Human Relations and a former president of the National Medical Association, receiving its distinguished service medal in 1949. Dr. Dailey was honorary consul of the Republic of Haiti and traveled internationally for both the International College and the state department giving lectures and conducting clinics. He had also worked extensively in founding and developing teaching clinics in the south.

CHARLES G. DAVIES*, retired, Blue Island, a graduate of the Rush Medical College in 1902, died April 15, aged 86. He had practiced in Blue Island from 1904 until he retired in 1958.

JOHN A. FIRTIK, Chicago, a graduate of the University of Illinois College of Medicine in 1913, died October 4, aged 72. He was a veteran of World War I.

GEORGE G. FOUSER*, retired, Phoenix, a graduate of the Northwestern University Medical School in 1904, died April 24, aged 91. He was a retired fellow of the American College of Surgeons and an emeritus member of the Illinois State Medical Society.

ROBERT C. FRINGER*, Rockford, a graduate of the University of Wisconsin Medical School in 1935, died May 23, aged 49. From 1954 to 1956 he was medical chief of staff at Rockford Memorial Hospital and was a fellow of the American Academy of Ophthalmology and Otolaryngology. He did postgraduate work at the University of Pennsylvania and was a flight surgeon in the Army Air Corps in Africa and Italy during World War II.

FRED L. GLENN*, Chicago, a graduate of the University of Illinois College of Medicine in 1896, died April 20, aged 89. A former president of the Chicago Medical Association, he had practiced in Chicago's Austin area over 65 years. He had been on the staff of West Suburban Hospital since its founding and served on the Chicago Medical Society's membership committee for many years. He was a past president of the Austin Kiwanis Club.

EARL L. GOODEN, Chicago, a graduate of the Howard University College of Medicine, Washington, D.C., in 1921, died May 26, aged 66.

SYDNEY S. GREENSPAHN*, Chicago, a graduate of the Northwestern University Medical School in 1920, died May 4, aged 68. He had for many years been medical director of the Inter-Insurance Exchange of the Chicago Motor Club and was a medical consultant for other insurance firms and several railroads.

HUBERT F. HARMAN, Chicago, a graduate of the University of Illinois College of Medicine in 1926, died May 26, aged 65. He had been on the staff of the Illinois Central Hospital 30 years and had practiced in Chicago's South Side over 30 years. He was a World War I infantry veteran.

EARLE E. HENSON*, retired, Princeville, a graduate of the Chicago College of Medicine and Surgery in 1912, died April 1, aged 73.

THOMAS G. HILL*, Springfield, a graduate of the Chicago Medical School in 1933, died May 10, aged 69. He was a member of the American Association of General Practitioners and had practiced in Springfield since 1941.

JOSEPH F. JAROS*, retired, Tampa, Florida, a graduate of the Northwestern University Medical School in 1912, died February 25, aged 76. He was an emeritus member of the Illinois State Medical Society.

EUGENE P. KING, Waukegan, a graduate of the Rush Medical College in 1925, died February 12, aged 68. A veteran of World War I, he was associated with St. Therese Hospital in Waukegan.

ROY W. KLINE*, Chicago, a graduate of the Bennett Medical College in 1913, died May 21, aged 70. He was a Chicago physician for almost 50 years.

ELIZABETH R. MINER*, Macomb, a graduate of the Denver College of Medicine in Colorado, died March 3, aged 93.

CLARA M. SCHUNK, Blandinsville, a graduate of the University of Illinois College of Medicine in 1910, died January 7, aged 82. She was formerly connected with the Mountain State Memorial Hospital in Charleston, West Virginia.

LEROY H. SLOAN*, retired, Duneland Beach, Ind., a graduate of the Rush Medical College in 1917, died June 2, aged 68. He had been director of medical services at Illinois Central Hospital for 36 years before retiring two years ago and moving from Chicago to Duneland Beach. He was a member of the Impartial Medical Testimony Committee of the Illinois State Medical Society for the past two years and active on its Industrial Health Committee. He did postgraduate study in Vienna from 1927 to 1935 and was also at the National Hospital, London, Eng., during that time. In 1915 he was a fellow in pharmacology at Northwestern University and in 1937 was certified in medicine.

He was president of the American College of Physicians in 1953-54 and was named a master in 1959. In 1956 he was chairman of the Joint Commission for Accreditation of Hospitals. He had been an attending physician and then consulting physician at Cook County Hospital for many years and was a former clinical professor of medicine at the University of Illinois and a former associate professor of medicine at Rush Medical College. In addition, he had been a consulting physician at Copley Hospital, Aurora, a consultant in internal medicine at the VA Hospital in Hines, an associate attending neurologist at St. Luke's Hospital, now Presbyterian-St. Luke's, and a member of the American Hospital Association.

RICHARD TRUMPAUSKAS, Alton, a graduate of the University of Moscow Faculty of Medicine, Russia, in 1918, died January 3, aged 69. He was associated with the Alton State Hospital.

ALMA T. WEAD, retired, Wyoming, a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1895, died May 15, aged 90. Before retiring in 1957 she had practiced in West Jersey and Wyoming for 62 years. She was cited on her 50th anniversary as a physician by the Illinois State Medical Society and the American Medical Association. In Wyoming she was an over 50-year member of its chapter of the Order of the Eastern Star, of which she was a past worthy matron.

**Indicates member of Illinois State Medical Society.*

Diabetes insipidus

Four patients with polyuria and polydipsia were studied in order to make a differential diagnosis between diabetes insipidus and primary functional polydipsia. Several of the tests recommended for such cases were performed and the results were analyzed critically. It was concluded that the most definitive test consists of administering vasopressin intravenously immediately after a period of dehydration. If the Pitressin produces a more concentrated urine than the dehydration, diabetes insipidus is diagnosed; if not, compulsive polydipsia is diagnosed. It is felt that diabetes insipidus and psychogenic polydipsia are related in many ways, but that they differ in prognosis; hence it is important to differentiate between them. *F. Dies, M.D., S. Rangel, M.D., and A. Rivera, M.D. Differential Diagnosis Between Diabetes Insipitus and Compulsive Polydipsia. Ann. Int. Med. April 1961.*

BOOK REVIEWS

EDEMA: MECHANISMS AND MANAGEMENT. A Hahnemann Symposium on Salt and Water Retention. Edited by John H. Moyer, M.D., and Morton Fuchs, M.D., $15. Pp. 833. Philadelphia, W. B. Saunders Company, 1960.

Since edema is the cardinal manifestation of salt and water retention in the body, it follows that this massive volume is dedicated to a consideration of disturbances of fluid and electrolytes, and that the point of view is principally clinical. Listed as contributors are some one hundred and twenty-three names of well known investigators and "sophisticated clinicians," to borrow the phrase employed by one of the more sophisticated contributors. The material dealt with has been organized under eight headings. The first two comprise, respectively, a review and discussion of what is known and what may be conjectured about the physiology of fluid and electrolyte balance, and what is known and what has been tried in the pharmacology and therapeutic use of diuretics. The remainder of the volume contains sections on iatrogenic edema, hypertension, toxemia of pregnancy and premenstrual tension, edema of renal origin, edema associated with liver disease, and finally, edema of congestive heart failure. The papers are interspersed, from time to time, with panel discussions, often spirited, usually valuable from the point of view of the reader.

The symposium as a basis for a permanent compilation has certain advantages. It permits the inclusion of multiple viewpoints, and it keeps the intellectual air fresh and bracing, since there is nothing to prevent one participant from disagreeing with another or even having conflicting viewpoints. The participation of many speakers is apt to result in the rather careful definition of the scope of the paper and the treatment of each aspect of the subject by a speaker who not only is competent in that aspect but who is presumably riding his preferred hobby.

On the other hand, the symposium lends itself to a good deal of reiteration, particularly of introductory material, a fair amount of clearing of the throat as each speaker seeks to present himself and his subject. For the seeker after truth, also, versions may vary sharply enough to be definitely confusing—and this in a field in which lack of knowledge provides inevitably a generous increment of confusion. In this connection, the first section is by far the most murky, a fact which is very genially explained by Dr. Earl S. Barker in his introductory paragraph. Dr. Barker speaks of "the dauntless ingenuity with which the physiologists of each period have supplied plausible explanations for new observations although frequently forced to abandon cherished beliefs of preceding periods." Of such developmental anomalies, the concept of the fluid compartment, that of the cell membrane and even the patriarchal concept of Starling himself, have served to keep the symposial ball rolling briskly, if not always straight.

The section on physiology suffers also from the desire on the part of many of the contributors to redefine where redefinition provides rather an exercise than an illumination. In this section, also, the prolix is more prominent than elsewhere.

The section on pharmacology opens with an excellent survey of the field of diuretics by Dr. James M. Sprague of Merck Sharp and Dohme Research Laboratories, after which the various groups of these agents are separately considered in terms of their chemistry, their mechanism of action, and their applicability. The material contained in this section is likely to remain fundamental if not completely current until such time as the derangement responsible for the

formation of the edema is made available for correction, rather than only the resulting edematous state.

The succeeding clinical sections are distinguished by the experience and opinions of clinicians representing groups in various parts of the country. Thus, the body of teaching which is apt to develop into a local dogma is subject in this volume to the modification at least of neighboring dogmata.

The proceedings of the Hahnemann symposium furnish in one book a readable, even though fairly encyclopedic, compendium of knowledge pertaining to edema. It seems unlikely, even in the present climate of scientific progress, that it will attain obsolescence within the next several years.

Edith B. Farnsworth, M.D.

CELLULAR ASPECTS OF IMMUNITY. CIBA Foundation Symposium. Edited by G. E. W. Wolstenholme, M. B., and C. M. O'Connor. $10.50. Pp. 495. Boston, Little, Brown and Company, 1960.

A symposium by 32 participants on the role of the cell in immunology. This is a highly technical volume of major interest to those laboratory workers deeply involved in the problem of the mechanism of antibody formation and the nature of immunologic tolerance, and also those concerned with the effects of antigen antibody complexes on cells. This is not a book which ordinarily would be suitable for the practicing physician.

Guy P. Youmans, M.D.

SIGHT, A HANDBOOK FOR LAYMAN. Roy D. Scholz, M.D. $3.50. Pp. 166. New York, Doubleday and Company, 1960.

In most of the world a knowledge of medical ills and their treatment is strictly the province of specially trained people: physicians, herb doctors, witch doctors, and the like. Rarely, a man may study medicine as part of his interest in the humanities, but in large part the layman feels that the malfunctioning of his body is an area beyond his ken.

Because of the spread of general education, this is not true in the United States. Anyone who can read finds dozens of articles in the lay press on medical practice, medical research, and medical economics. Unfortunately, many of these articles are fragmentary and present only the more dramatic or even sensational aspects of disease. It is for this reason that a book such as Dr. Scholz's is most welcome. It is comprehensive enough to cover all the illnesses of the eye and does so without being alarming to the people most likely to read it, i.e., those with eye ailments.

In orderly fashion the author covers the anatomy of the eye, the eye examination, physiologic variations in ocular function, and diseases of the eye. Particularly helpful are the chapters devoted to the visually handicapped and to the eyes of those in school and industry. The line drawings are simple and clear, and the tone quiet and free from "journalese."

This book is recommended not only to the intelligent layman but to the physician as well. He may not only add to his store of knowledge about the eye, but, most important, it should improve his ability to communicate with the patient about his eye problems.

David Shoch, M.D.

PROGRESS IN THE TREATMENT OF FRACTURES AND DISLOCATIONS — 1950-1960. Thomas B. Quigley, M.D., and Henry Banks, M.D. $2.50. Pp. 102. Philadelphia & London, W. B. Saunders Company, 1960.

This little book reviews progress in the treatment of fractures and dislocations over the past ten years. It treats fractures as well as some of the general principles of fracture management, including non-union, bonegrafting, open fractures. This book will serve as a ready reference by bringing current thought on fracture management to the medical profession. Of particular value is the bibliography consisting of 426 references at the end of the volume.

The book is espeically valuable to those concerned with trauma.

William A. Larmon, M.D.

SURGICAL ERRORS AND SAFEGUARDS. Max Thorek, M.D. 5th ed. $25. Pp. 652. Philadelphia, J. B. Lippincott Co., 1960.

The fifth edition of this book has been rewritten from previous editions with the help of 22 collaborators. According to the senior author, the purpose of this volume is to point out the errors and the safeguards which should be remembered and considered in the practice of

surgery, for no person is so perfect in his knowledge or experience that an error in opinion or action is not possible.

This volume is organized so that systems, organs, tissues, etc. are considered individually. This could be improved by a clearer delineation and grouping of material. Some of the chapters are excellent; however, much of the volume is rather rambling, extended, and confusing. Treatment for specific problems is indicated, but in some instances this is outmoded as in the injection treatment of hernia. There are glaring omissions such as in the lack of discussion of electrolytes, both pre- and postoperative. Many of the illustrations are excellent, but others are of such poor quality that the point alluded to is almost completely missed.

In this day of adequate, excellent graduate programs for the young physician who wishes to do specialty work, this book has little purpose and will not be as helpful to the student or practicing physician as a careful and precise volume of operative and postoperative care. It is a volume outmoded for the serious student and could never be adequate for the physician who wishes to "dabble" in surgery.

W. Harrison Mehn, M.D.

BLOOD DISEASES OF INFANCY AND CHILDHOOD. Carl H. Smith, M.D. $17. Pp. 572. St. Louis, Mo., The C. V. Mosby Company, 1960.

In the preface the author states that the purpose of the book is to present the essentials of pediatric hematology in concise form for the medical student and practitioner. The various blood conditions are presented against the background of normal development of infancy and childhood. Subject matter is covered clearly and adequately. References are found at the end of each chapter. Emphasis is placed on the diagnosis and management of the blood diseases encountered in pediatric practice.

Of special interest to the pediatrician is the section dealing with erythroblastosis fetalis (hemolytic anemia of the newborn infant). Steps are outlined for the treatment of hyperbilirubinemia. The author stresses the importance of incompatibility within the ABO blood group system as a common cause of erythroblastosis. In erythroblastosis due to ABO incompatibility jaundice is frequently mild and is overlooked in the first day of life. The physician is often confronted with unexpected hyperbilirubinemia on the third or fourth day of life. To avoid this contingency, the ABO blood group and Rh typing of the mother and infant should be conspicuously placed on the chart and susceptible infants kept under scrutiny.

The author includes recent contributions in the field of immunohematology, genetic analysis, electrophoretic examination, and inborn errors of metabolism. This book is a valuable addition to physicians interested in pediatric hematology.

Eugene L. Slotkowski, M.D.

MANAGEMENT OF HYPERTENSIVE DISEASES. Joseph C. Edwards, M.D. $15. Pp. 439. St. Louis, The C. V. Mosby Company, 1960.

The last decade has brought forth many effective new drugs capable of reducing the blood pressure and apparently of increasing the life span of patients with hypertension. Pharmacologic advances have made good therapy obsolete even before practicing physicians have learned its use. New books, at least fifteen within the decade, have appeared when their authors thought there was a plateau in the rapid ascent of knowledge of sufficient duration to justify definitive instruction for practical therapy; but at least until now, the book was virtually antiquated by the time the publisher could release it.

Dr. Edwards shows: "The choice of drugs is empirical trial and error coupled with sound judgment and experience gained from discerning clinical observation . . . The kind, sympathetic approach of the physician helps immensely in the process of management of the hypertensive patient, who is an individual and should be treated as such." He has succeeded admirably well in supplying up-to-date information, referring to literature within a few months of the publication date, October 31, 1960. Over 1,600 selected references to other recent publications are included.

The book is written "for the busy physician in practice who wants the latest information on the treatment of hypertension and guidance in selecting proper medication for a particular patient." It searches deeply enough into the subject to be suitable for senior residents and practicing specialists in internal medicine. It is difficult reading, unsuitable for hasty scanning. A great abundance of statistical data interrupts the text. The few errors in text, resulting in all

likelihood from the desire to provide current instruction during a maelstrom of progress, are fairly easy for the discriminating reader to identify and are not likely to endanger patients. Inevitably, only a short time is likely to elapse before revision will be necessary.

William H. Wehrmacher, M.D.

CARDIOVASCULAR DYNAMICS. Robert F. Rushmer, M.D. $12.50. Pp. 503. Philadelphia, W. B. Saunders Company, 1961.

This book is an extensive revision and enlargement of a well known text, previously published under the title *Cardiac Diagnosis*. It is intended mainly for medical students, but internists and cardiologists will derive great pleasure and obtain considerable information by reading it.

The components of the cardiovascular system are presented in terms of their structure, function, and control, both under normal conditions and in various diseases. Chapter 1 is partly devoted to the study of flow through various segments of the circulatory system, a topic which the author has personally studied. The description of the function of capillaries, lymphatics, and veins deserves special praise because it is often too briefly described in similar works.

The sequence of events during the cardiac cycle is illustrated by cinefluorography and angiocardiography, as well as by volume and pressure curves. The initial systolic expansion of the free left ventricular wall is one of the facts brought to light by the newer methods of study.

The relation of myocardial fiber length to ventricular volume, the effect of epinephrine on the myocardium, the study of the heart by means of ultrasounds, and the analysis of ventricular performance with electronic computers, are some of the topics covered in Chapter 3. Chapter 4 deals with peripheral vascular control, Chapter 5 with pressure measurements. The description of electric pressure transducers will be of great use to many researchers. The succeeding chapters take up cardiovascular response during exertion, a topic particularly studied by the author: the coronary system; and the electric activity of the heart. Cardiovascular sounds are discussed in Chapter 11. The theory that the rapid vibrations of the heart sounds are caused by accelerations and decelerations of the blood is of great interest and will undoubtedly be the source of lively discussions. Rheumatic and congenital heart diseases, the study of cardiac reserve, and that of blood volume and congestive failure complete this magnificent book.

The beautiful and simple schemes presented to the readers are of great help in abbreviating the text without decreasing the clarity of explanations.

A. A. Luisada, M.D.

HAEMOPOIESIS: CELL PRODUCTION AND ITS REGULATION. G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P. and Maeve O'Connor, B.A. $11. Pp. 490. Boston, Little, Brown & Company, 1960.

This book contains the proceedings of a symposium on Haemopoiesis sponsored by the Ciba Foundation and held in England from Feb. 2-4, 1960. Twenty-seven authorities from Europe and the United States participated in or attended the symposium with Prof. J. M. Yoffey acting as chairman. Sixteen papers were presented. The first part of the symposium deals with formation and development of leukocytes with special emphasis on the lymphocyte and lymphomyeloid system. The use of radioisotopes, tritiated thymidine and tissue cultures in the study of blood cell formation is discussed in detail.

The last part of the symposium is devoted to factors regulating red cell formation with special reference to the erythropoietic-stimulating factor, or erythropoietin. Included in the subject matter are vitamin B_{12} response to blood loss, kinetics of erythropoiesis, humoral and other factors controlling hemopoiesis, human urinary erythropoietin and induced polycythemia as a model for studying erythropoietic factors.

As is to be expected, much of the material presented has been published elsewhere.

Very useful features of the symposium to workers in this field are the informal discussions following each presentation, the pertinent bibliographies with an alphabetical index of all authors cited and the complete subject index. This book should be a valuable addition to the hematologist's library.

Howard L. Alt, M.D.

Reference Page Number 21

Sources for Educational Scholarships

PREMEDICAL SCHOOL	APPLY
State Scholarships	Illinois State Scholarship Commission 730 Waukegan Road Deerfield
University of Illinois County Scholarships	County Superintendent of Schools and Dean of Admissions University of Illinois Urbana
Merit Scholarships	National Merit Scholarship Corporation 1580 Sherman Avenue Evanston
Pullman Scholarships (Only Cook County applicants)	Educational Director George M. Pullman Educational Foundation 168 North Michigan Avenue Chicago 1
High School Scholarship Awards	Society for Academic Achievement W.C.U. Building Quincy

FINANCIAL AID TO MEDICAL STUDENTS IN ILLINOIS*

Alexander E. Lawson
Director of Adult and Veteran Education
Office of Superintendent of Public Instruction
Springfield

I. E. Parett, Secretary
Student Loan Fund Board
Illinois Agricultural Association
43 East Ohio Street
Chicago 11

Dr. Andrew H. Ryan
Dean of Students
The Chicago Medical School
710 South Wolcott Avenue
Chicago 12

Dr. Joseph Ceithaml
Dean of Students
University of Chicago School of Medicine
5801 Ellis Avenue
Chicago 27

Dr. Maurice J. Galbraith
Dean of Student Affairs
University of Illinois College of Medicine
1853 West Polk Street
Chicago 12

Dr. John A. D. Cooper
Associate Dean
Northwestern University School of Medicine
303 East Chicago Avenue
Chicago 11

Dr. Thomas P. Galarneault
Assistant Dean
Loyola University
Stritch School of Medicine
706 South Wolcott
Chicago 12

For negro students:
National Medical Fellowships, Inc.
951 East 58th Street
Chicago 37

**Taken from Sources of Information on Financial Aid to Medical Students published by the Association of American Medical colleges, 2530 Ridge Avenue, Evanston.*

College catalogs have detailed information pertaining to their own scholarships and financial aid. The Tuition Plan, Inc., 347 Fifth Avenue, New York 16, had a long term installment plan, for parents. Work-study plans are available in some colleges, details of which may be obtained from the Division of Higher Education, Washington 25, D.C. "Guidelines for Parents of Capable Youth" published for the Superior and Talented Student Project of the North Central Association by Science Research Associates, Inc., 259 East Erie Street, Chicago 11, and written by Dr. Robert F. DeHaan, is another source of scholarship information.

from the Illinois Medical Journal
JULY, 1961

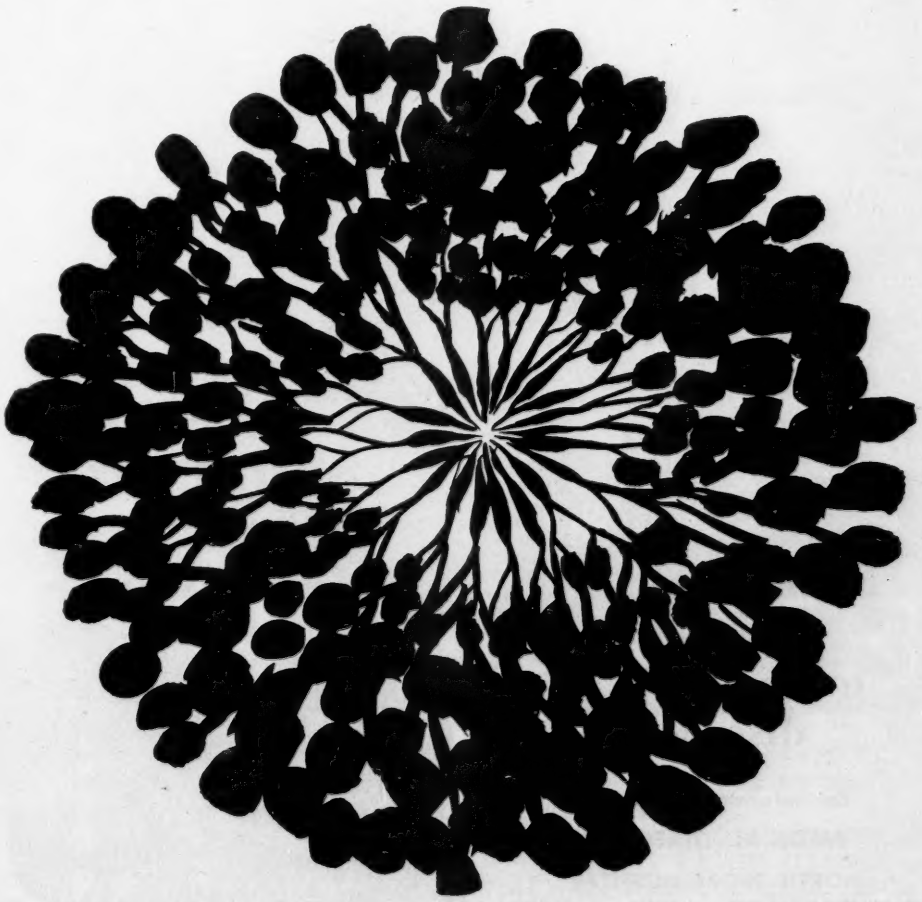
DELADUMONE® 2X

Squibb Testosterone Enanthate and Estradiol Valerate

PREVENTS LACTATION AND BREAST ENGORGEMENT / just one injection at the end of the first stage of labor / optimally balanced, long-acting combination of gonadal steroids for easy injection through small-gauge needle because of low viscosity / virtually eliminates need for analgesics[1] / essentially eliminates withdrawal reaction and secondary breast engorgement sometimes associated with oral medication[1] / does not affect involution of uterus or restoration of normal ovarian function[2].

SQUIBB *Squibb Quality—the Priceless Ingredient*

DELADUMONE® is a Squibb trademark



Supply: Each cc. of Deladumone 2X provides 180 mg. testosterone enanthate and 8 mg. estradiol valerate dissolved in sesame oil. Vials of 2 cc. Dosage: 2 cc. given as a single intramuscular injection preferably at the end of the first stage of labor or else immediately upon delivery. For full information see your Squibb Product Reference or Product Brief. References: 1. Watrous, J. B., Jr., et al.: J.A.M.A. 169: 246 (Jan. 17) 1959. 2. Lo Presto, B., and Caypinar, E.Y.: J.A.M.A. 169:250 (Jan. 17) 1959.

BREED RADIUM INSTITUTE

SUITE 633 PITTSFIELD BUILDING
55 EAST WASHINGTON STREET
CHICAGO 2, ILLINOIS

TUMOR THERAPY

J. ERNEST BREED, B.S. M.D.
BOARD CERTIFIED

RAndolph 6-5794

Exercise and cholesterol

Aside from the marked increase in the consumption of saturated animal fats, there is probably no more profound alteration in recent times in this country than in the nature of our occupational physical activity. Mechanization, automation, and transport have turned most jobs into sedentary push-button ones. Field studies have revealed that the average daily physical energy expenditure of the modern farmer removes him from the category of a heavy worker. A large factory in Cleveland, Ohio, has found it necessary to institute a program of recess periods each afternoon so that the employees may engage in some sort of physical activity in order to maintain physical fitness. Some epidemiological studies have had difficulty in gathering sufficient numbers of people engaged in heavy labor to make the studies statistically significant. How much this has to do with the increase in coronary atherosclerotic heart disease is still problematical. *David M. Spain, M.D. Problems in the Study of Coronary Atherosclerosis in Population Groups. Ann. New York Acad. Sc. Dec. 8, 1960.*

Fully Accredited

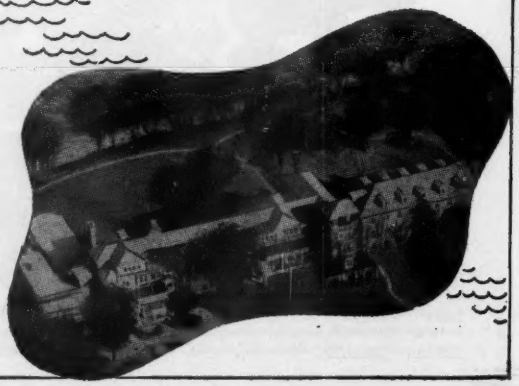
NORTH SHORE HOSPITAL · WINNETKA, ILLINOIS · EST. 1936

NORTH SHORE HOSPITAL

—for psychiatric treatment and research

on the shores of Lake Michigan
WINNETKA, ILLINOIS

Care and treatment of emotional disorders



For information contact
MEDICAL DIRECTOR
NORTH SHORE HOSPITAL
225 SHERIDAN RD — HIllcrest 6-0211

PHENAPHEN

- More satisfactory than "the usual analgesic compounds" for relieving pain and anxiety.[1]
- More effective than a standard A.P.C. preparation for relief of moderate to severe pain.[2]

Each PHENAPHEN *capsule contains:*

Acetylsalicylic acid (2½ gr.)	162 mg.
Phenacetin (3 gr.)	194 mg.
Phenobarbital (¼ gr.)	16.2 mg.
Hyoscyamine sulfate	0.031 mg.

Also available:

PHENAPHEN with CODEINE PHOSPHATE ¼ GR. (16.2 mg.) Phenaphen No. 2

PHENAPHEN with CODEINE PHOSPHATE ½ GR. (32.4 mg.) Phenaphen No. 3

PHENAPHEN with CODEINE PHOSPHATE 1 GR. (64.8 mg.) Phenaphen No. 4

Bottles of 100 and 500 capsules.

1. Meyers, G. B.: Ind. Med. & Surg. 26:3, 1957. 2. Murray, R. J.: N. Y. St. J. Med. 53:1867, 1953.

A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA

Making today's medicines with integrity... seeking tomorrow's with persistence.

Robins

Blue Shield's efforts

Efforts to make physicians generally aware of the crucial nature of Blue Shield's situation have met with only moderate success. Meetings devoted to the consideration of the problems of individual Blue Shield Plans have held little interest for the average physician. Witness the pathetically small attendance at their annual business meetings where policies important to every physician are determined. There is even less concern shown for the national Blue Shield program. This situation, too, is taking on serious proportions because if participating plans are not standardized failure would seem inevitable.

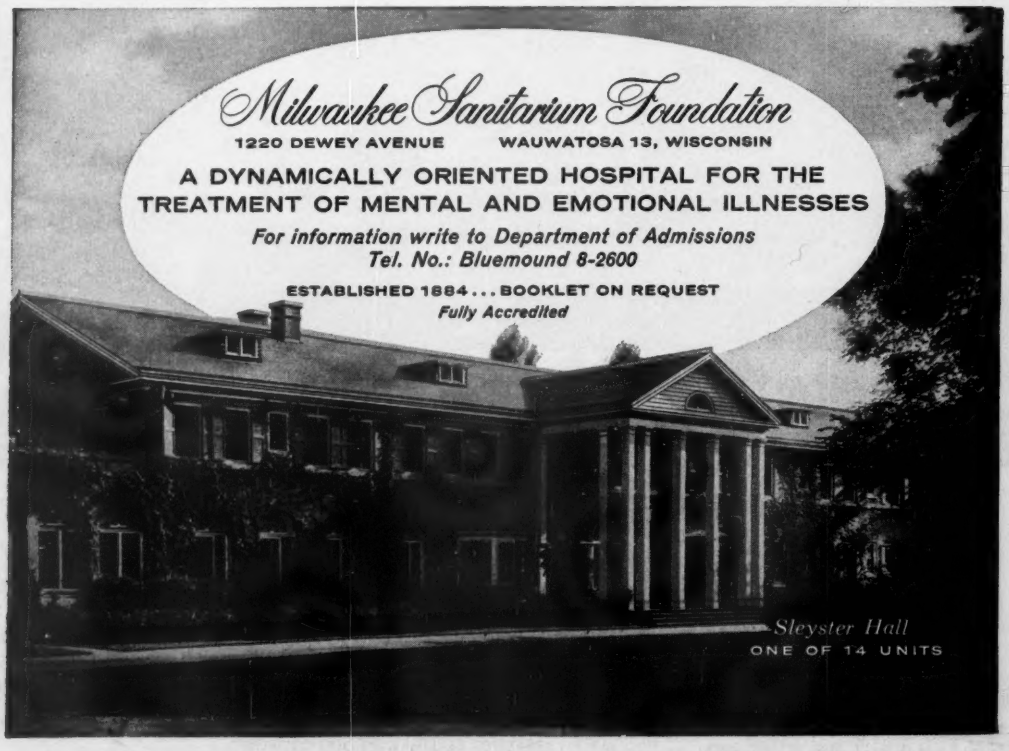
It is doubtful if many articles appearing in medical journals about voluntary health insurance are widely read by doctors. At least this is the impression one gains in listening to small groups of physicians when they discuss the subject.

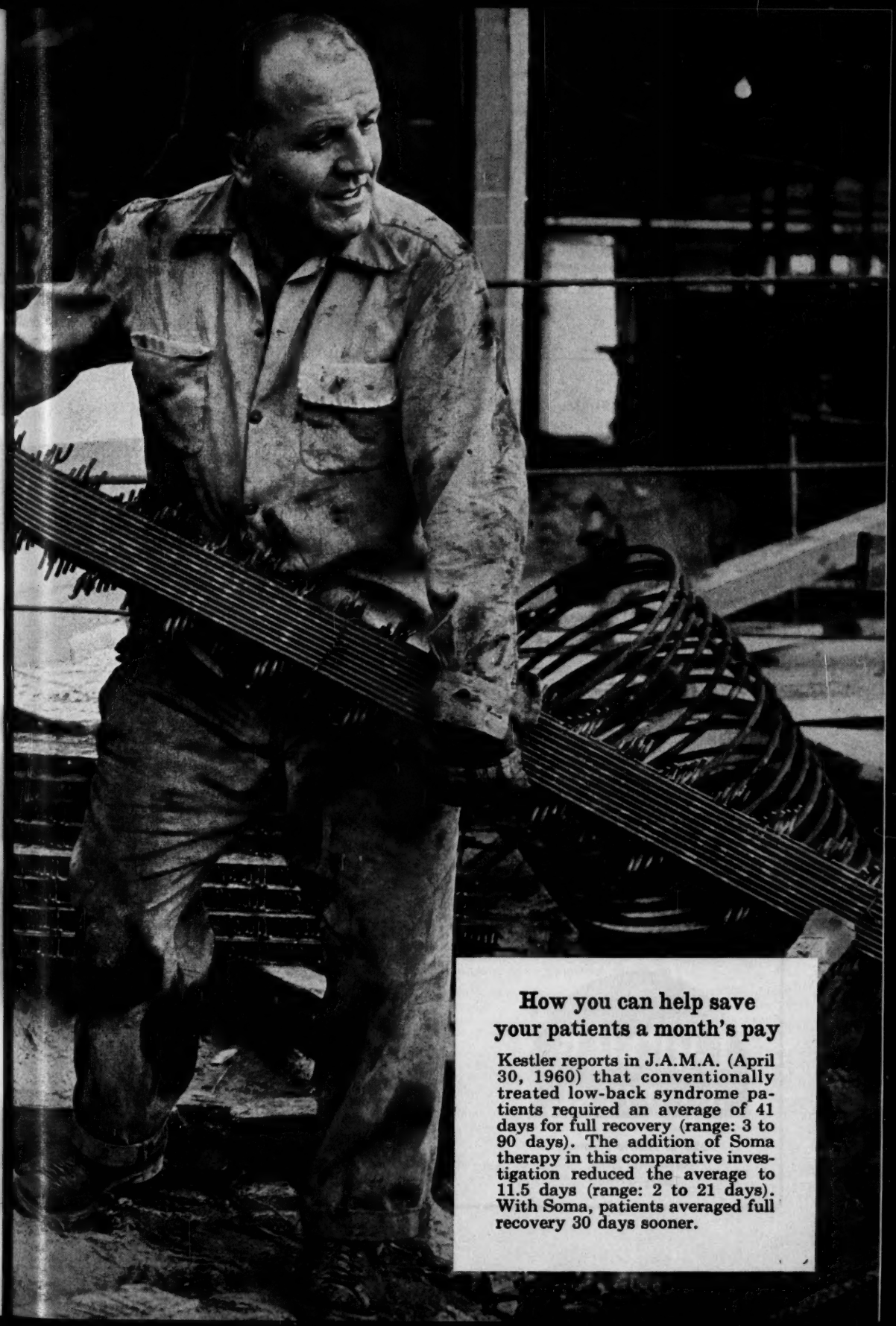
Again, time is of the essence where voluntary health insurance is concerned. Medical leaders know it. They are trying desperately with more or less effectiveness to meet the demands of the people through voluntary methods, but they need the support of greater numbers of the profession.

What are the objectives of forward-looking Blue Shield leaders and their supporters? Briefly, they are the establishment of standards to which all of the plans will adhere, general adherence to the service principle; broadening of benefits to meet the demands of the people; a much closer liaison between National Association of Blue Shield Plans and the American Medical Association; and, finally, a cohesive national organization having a far more significant influence in dealing with this country's prepaid medical care problems than in the past. *In & Out of Focus By the Observer. Med. Ann. District of Columbia. December 1960.*

Thyroid therapy during pregnancy

Numerous miscarriages have been observed in patients in whom the BEI or PBI levels either fail to rise during pregnancy or remain at a suboptimal level. Thyroid therapy improves the salvage of pregnancy in many of these cases. *Ralph C. Benson, M.D. Treatment of Thyrotoxicosis During Pregnancy. GP. December 1960.*


Milwaukee Sanitarium Foundation
1220 DEWEY AVENUE WAUWATOSA 13, WISCONSIN
A DYNAMICALLY ORIENTED HOSPITAL FOR THE TREATMENT OF MENTAL AND EMOTIONAL ILLNESSES
For information write to Department of Admissions
Tel. No.: Bluemound 8-2600
ESTABLISHED 1884 ... BOOKLET ON REQUEST
Fully Accredited
Sleyster Hall
ONE OF 14 UNITS



How you can help save your patients a month's pay

Kestler reports in J.A.M.A. (April 30, 1960) that conventionally treated low-back syndrome patients required an average of 41 days for full recovery (range: 3 to 90 days). The addition of Soma therapy in this comparative investigation reduced the average to 11.5 days (range: 2 to 21 days). With Soma, patients averaged full recovery 30 days sooner.

The NORBURY SANATORIUM

JACKSONVILLE, ILLINOIS — INCORPORATED and LICENSED

For the Treatment of Nervous and Mental Disorders

FRANK GARM NORBURY, M.D., Medical Director

Address Communications — THE NORBURY SANATORIUM, Jacksonville, Illinois

Personal injury suits

Since many patients with head injuries become involved in litigation, usually personal injury suits, and since verdicts in such civil suits are largely determined by medical testimony, the physician becomes secondarily involved on the side of both the plaintiff and the defendant. The differentiation of organic and psychic symptoms, although somewhat artificial, may be helpful to both lawyers and doctors in considering disability, prognosis, and rehabilitation. The plaintiff's attorney may find relevance in the fact of two diagnoses, two types of disability. It may be of interest to the defendant's attorney that not all symptoms following head injury are necessarily organic and permanently disabling, but that some are functional reversible. Assuredly, the patient, the patient's family, and the doctor should be deeply interested in learning which symptoms are amenable to sound psychological handling and rehabilitation, and which may be irreversible. *Herbert C. Modlin, M.D. Psychological Reactions to Head Injuries. Nebraska M. J. May 1961.*

I figured I'd make a little extra pin money.

FAIRVIEW HOSPITAL

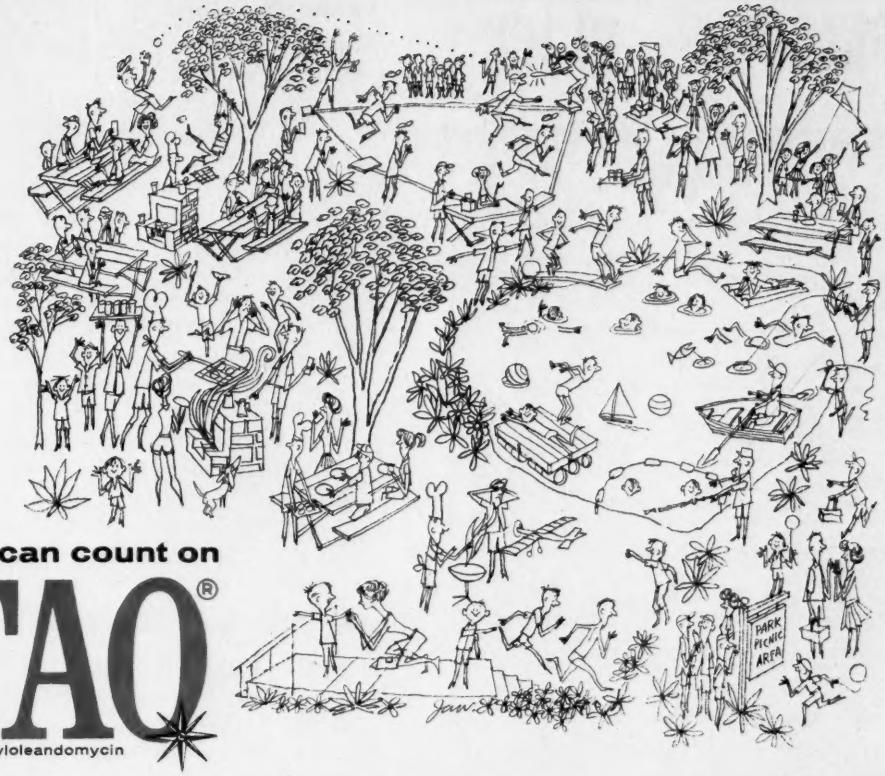
2828 S. Prairie Avenue
Chicago 16, Ill.
Victory 2-1650

Devoted to Medical Psychiatry
for the active treatment of
Mental and Nervous Disorders

BLUE CROSS Member Hospital

ALCOHOLISM Treated by Comprehensive Medical-Psychiatric Methods

J. DENNIS FREUND, M.D., F.A.P.A.
Medical Director



you can count on

TAO®

triacetyloleandomycin

IN SUMMER INFECTIONS

OF SKIN AND SOFT TISSUE (SUCH AS IMPETIGO, INFECTED WOUNDS) DUE TO SUSCEPTIBLE ORGANISMS

against the pathogen—Tao extends the Gram-positive spectrum of usefulness to include many staphylococci resistant to one or more of the commonly used antibiotics.

for the patient—Tao narrows the spectrum of side effects by avoiding many allergic reactions and changes in intestinal bacterial balance.

Tao performance in clinical practice: "The results [in 81 cases] . . show that triacetyloleandomycin is an effective antibiotic and that it is especially so against pathogenic staphylococci. . . ."[1]

"Results with triacetyloleandomycin in this study [74 patients], therefore, corroborate those of other dermatologic investigators and show this antibiotic to possess a good therapeutic index and low order of toxicity and allergic sensitivity."[2]

Good to excellent results (with symptomatic treatment) in all of 30 skin and/or soft tissue infections which had failed to improve or resolve with local treatment, incision and drainage, or debridement.[3]

Precautions and side effects: The use of antibiotics may occasionally permit overgrowth of nonsusceptible organisms. A resistant infection or superinfection requires re-evaluation of the patient's therapy. This preparation should be discontinued, and specific therapy and indicated supportive treatment instituted if such resistant infection or superinfection should appear.

Following widespread and extensive use of TAO, mild reversible jaundice presumed to have been caused by the administration of TAO has been observed in a few pediatric patients. In these cases jaundice was first noticed after periods varying from 10 days to 8 weeks of continuous treatment with the drug. When jaundice was first noticed, the doses employed in these children ranged from 50 to 100 mg./kg./day, a dose which in all cases is in excess of those recommended. In every case the jaundice was mild and quickly reversible on discontinuance of medication.

Available as *Tao Capsules*, 250 and 125 mg.; *Ready Mixed Oral Suspension*, 125 mg. per 5 cc.; *Pediatric Drops*, 100 mg. per cc. of reconstituted liquid; *Intramuscular* or *Intravenous*, as oleandomycin phosphate.

References: 1. LeFebvre, M., et al.: Antibiotics Annual 1959-1960, New York, Antibiotica, Inc., 1960, p. 755. 2. Fisher, A. A.: Med. Times **88**:1056 (Sept.) 1960. 3. Steller, R. E.: Antibiotic Med. & Clin. Therapy **7**:691 (Nov.) 1960. Literature on request.

and for nutritional support **VITERRA®** Vitamins and Minerals
formulated from Pfizer's line of fine pharmaceutical products

New York 17, N.Y.; Division, Chas. Pfizer & Co., Inc., *Science for the World's Well-Being®*

BELLEVUE PLACE

For

NERVOUS and MENTAL DISEASES

★

Edward Ross, M.D., Medical Director
BATAVIA PHONE
ILLINOIS TRemont 9-1520

Classified Ads

RATES FOR CLASSIFIED ADVERTISEMENTS — For 30 words or less: 1 insertion, $3.00; 3 insertions, $8.00; 6 insertions, $14.00; 12 insertions, $24.00; from 30 to 50 words: 1 insertion, $4.00; 3 insertions, $10.50; 6 insertions, $20.00; 12 insertions, $30.00. Extra words: 1 insertion 10c each; 3 insertions, 25c each; 6 insertions, 40c each; 12 insertions, 50c each. A fee of 25c is charged for those advertisers who have answers sent care of the Journal. Cash in advance must accompany copy.

PHYSICIANS SEEKING LOCATIONS IN ILLINOIS — are notified to contact the Physician's Placement Service in the office of the Illinois State Medical Society, 360 N. Michigan Ave., Chicago 1, Illinois. A file listing communities seeking physicians is maintained. There is no charge for this service of the Society.

WANTED: Pediatrician, OB/Gyn, Orthopedic Surgeon, Gastro enterologist, Allergist to join 16-man Clinic. Starting salary $16,000-$18,000. Partnership status after one yr. Weber Medical Clinic, 600 E. Main St. Olney, Ill. 8/61

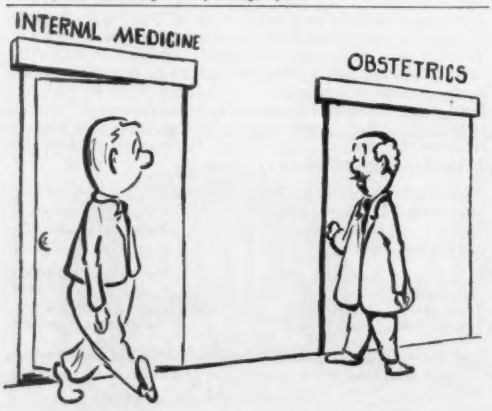
FOR SALE: Fully equipped new office building. Reasonable. Private parking area for patients. Doctor was in general practice for 28 years. Town of 20,000 with 2 hospitals. Contact Box 329, c/o Ill. Med. Journal, 360 N. Michigan Ave., Chicago 1, Ill. 8/61

PHYSICIAN — DIAGNOSIS ONLY. Travel Midwest new Mobile Medical Center non-profit organization. Steady employment. Salary, expenses, vacation. Write Medical Director, Garment Industry Medical Center, 4646 Lindell, St. Louis 8, Mo.

WANTED ASSOCIATE, opportunity partnership, physician licensed Illinois, American born, General Surgical training. Small modern town, Hill Burton Hospital, staff privileges. Salary open, straight or percentage. Busy clinic. Write Box 334, Ill. Medical Journal, 360 N. Michigan Ave., Chicago 1, Ill.

ACTIVE GENERAL PRACTITIONER age 44 desires part-time position with an institution or small hospital for a period of about six months. Write Box 335, Ill. Medical Journal, 360 N. Michigan Ave., Chicago 1, Ill.

FOR SALE: Illinois. Modern radiological office, air-conditioned, lead-lined, diagnostic and therapy. Also suitable for Dermatologist and Orthopedist combined. No Dermatologist in town. Box 336, Ill. Medical Journal, 360 N. Michigan Ave., Chicago 1, Ill.



Guess whose wife got professional courtesy today?

Advance in rabies control

The recent development of the Flury strain of chick-embryo-adapted live-rabies virus by Koprowski is another significant advance in rabies control. Although this vaccine has been extensively and effectively used for canine inoculation, it is not known whether it is safe and effective enough for routine human use. Studies by Schwab in 1954 in human subjects indicated that little or no virus multiplication occurred in man. Present evidence seems to be sufficient to warrant the use of Flury virus vaccine for human use as a prophylactic agent for those subject to high risk of exposure to rabies. Its use for postexposure protection is indicated only in those who have had previous administration of brain-tissue vaccine or in those who develop signs of sensitization. *A. William Menzin, M.D. Current Immunization Methods and Materials. Arch. Int. Med. March 1961.*

Space ships or nothing

Particularly in the drug field, we have noted that the Soviets have failed to develop even one new product. This is undoubtedly true of the other items in this classification. By adapting from others they are relieved of the creative and technical effort plus the experimentation. Their claim is that a tremendous amount of human energy is wasted in the United States where hundreds of our scientists are engaged in this inventive process. By choosing from the hundreds and thousands of the best of the product produced in other countries to copy and produce in the Soviet Union, they claim they release thousands of their young scientists for work in key revolutionary industries which they claim will ensure their domination of the world.

How like some of our own activities in pharmaceuticals here. The production of generic equivalents is a comparatively easy process; their use in certain of our pharmaceutical dispensaries, lends an aura of respectability to the producer. How unlike our respected American way of life! *Newell Stewart. What is the Generic Equivalent End Product? South Dakota J. Med. & Pharm. December 1960.*

For everything you have missed you have gained something else. — *Emerson*